

The University of Hull

**Theoretical and empirical analysis and discussion of the
administrative and economic pattern of investment in
education with particular reference to Greek primary
education**

**being a thesis submitted for the degree of Doctor of
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by

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ABSTRACT

This thesis is concerned with an examination of the administrative system and economic pattern of investment in regard to primary education in Greece.

Greek public education, fully supported and controlled by the State, is organised vertically into three levels : primary, secondary and tertiary.

In the field of primary education the role of schools is to help pupils obtain essential knowledge which will gradually enable them to develop critical thinking skills. To this end the primary school should be effective. A school can be considered effective when it facilitates accomplishments of objectives such as more and better provision of knowledge for pupils and a minimum of undesirable financial consequences. Efficiency of a school organisation, however, is not an automatic but depends upon various factors (e.g. methods of work, the quality of teaching staff, appropriate financial provision) among them effective administration, in order to provide a comprehensive service.

Despite the importance of school administration and the educational reforms which took place in the last twenty years (e.g. Education Acts No 309/1976, No 1566/85), recent research (OECD, 1995) has shown that the Greek education system operates within a highly centralised, highly bureaucratised politico-administrative system. Overall, it makes of education a closed system not easily amenable to changes and innovation.

It is in this context and against this background that the research has been undertaken to investigate the administration of the school system in Greece. The aim of this research is:

- to examine the administrative and economic pattern of primary education in order to identify what changes are required to facilitate the improvement of school management as well as to effect well-planned and sufficient investment. With regard to economic planning the thesis includes an analysis of the pattern of spending on primary education in 52 prefectures for the school years 1985-1994. The dominant variables determining expenditure are identified and certain weakness noted;

- to redefine the role of MNERA with a view to improving its organisational structure, policy planning and operational capacity; and

- to put into a practical context the centralisation of decision making and the giving of greater authority to primary schools in order to enhance their creativity and freedom of action within centrally set norms.

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Dedicated in the memory of my loving cousin Gianni

Dimitropoulos

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ABBREVIATIONS

EMS	European Monetary System
EU	European Union
GDP	Gross Domestic Product
GNP	Gross National Product
MNERA	Ministry of National Education and Religious Affairs
MP	Member of the Parliament
KYSPE	Central Council for primary education in Greece
OLS	Ordinary Least Square
PEA	Prefectural Educational Authorities
PYSPE	Prefectural council for primary education in Greece
LEA	Local Education Authorities
PC	Prefectural Council
PEC	Prefectural Education Committee
OECD	Organisation for Economic Co-operation and Development
MF	Ministry of Finance
NPH	National Printing House
SELETE	In-service training of technical and vocational teachers
PEK	Centres for In-service training teachers
MDDE	Marasleio Teacher Training College
ESYE	National Statistical Service of Greece
O and M	Organisation and Methods
SMSA	Standard Metropolitan Statistical Area
OAED	Manpower Employment Organisation

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CHAPTER ONE

ASPECTS OF THE HISTORICAL, SOCIAL, POLITICAL AND ECONOMIC BACKGROUND IN GREECE

1.1 Introduction

It is known that the educational system of a nation is closely associated with its contemporary social, political and economic conditions. In attempting to appreciate and evaluate such a system, it is necessary to know something about the conditions which have determined its growth. Given that this study aims at an examination of the administrative system of the primary schools in Greece, it is proposed to begin the chapter with a historical perspective of the educational system. It is important to consider the emphasis to be placed upon elementary education as the primary schools affect the whole system.

1.2 The development of the Greek educational system

Although the present Greek educational system includes some 'new' features, the basis of the system has evolved from the past. Thus, it is necessary to refer back to history not only to justify the development of primary education but also to give possible reasons for certain trends, approaches and traditions in Greek education which are persistent and firmly established.

The process of the development of the modern Greek educational system began after 1821 when Greece finally (after several attempts) succeeded in gaining its independence from 400 years of Turkish rule. However, after independence, the Greek educational system was almost non-existent. Thus, the education system did not only follow a linear evolution, but also had certain drawbacks that were the natural results of almost continuous socio-political instability. The absence of a uniform approach within the Greek education system was the outcome of pressure of different interests and interpretations. Education in Greece, in the nineteenth century, was the focus of several debates motivated by political reactions.

For the period 1821-1909 the main characteristics of Greece's social environment were processes of urbanisation which implied change and threatened stability and certain traditions of land ownership and feudal relationships (a 'memory' from Turkish society) (Bouzakis, 1987). Moreover, there were significant influences on political and educational policy from the already dominant European powers (e.g. Germany). An interesting example of this is the period 1833-62, in which German authorities, through the King Otton, exercised great influence on economic and educational policy and hence presented a particular threat to Greek autonomy. It was only at the end of the nineteenth century that there was a public growing demand for educational reform as well as increasing pressures for a major legislative measure to extend educational provision. Earlier than

this it was practically impossible for the public to require 'better' education if only because from 1863 until 1881 there were thirty three parliamentary elections and forty-six ministers held responsibility for Education (Papakonstantinou, 1990). It is clear that political instability created several problems which grew more acute with the passing of time.

Provision of education did not reach minimum standards qualitatively. In 1830 the number of primary schools was 71 and the number of pupils enrolled in elementary education 6,000, 8% of the total of young people eligible for primary education (Bouzakis, 1987). The low appeal of education for young pupils was reflected for many years by static numbers of students as well as by their percentage in regard to the total number of pupils engaged in elementary education. Between 1830 and 1860 more than 39,000 children were in attendance in primary education (Dendrinou-Antonakaki, 1955). In 1901 the percentage of pupils in attendance in primary schools increased to 63% of the total population of pupils. There is evidence, that at the start of the present century 37% of Greek pupils did not attend primary education (National Statistical Service of Greece, 1933).

From February 1834, economic and political factors began to make educational reforms more likely. The Act of 1834 was the first such act after independence and, by it, attendance at schools was made compulsory for all children. The Act created a Minister responsible for all matters connected with education. The duties of the Minister were both administrative and financial. Some of the

constitutional arrangements survived until 1895. At that time there were a number of changes but financial dependence on Central Government remained in force until today. The Minister had five important functions (Lefas, 1942 and Papakonstantinou & Andreou, 1994). He had to exercise responsibility:

- **over the regional teachers.** Teachers, like inspectors, in each region were appointed to inspect their schools every six months and were required to conduct an inquiry into the ability of the teachers and the progress of pupils;
- **over local supervisory committees.** These committees consisted of four or five members: the Chairman of the local borough, a representative from the Church and two to four members from the municipal council. The duties of the committee related to the school staff and were of both an administrative and disciplinary nature;
- **over the inspectors' committee.** According to terms 38 and 39 of the Law this committee consisted of six or eight members who were responsible for the schools of each region. Its duties were to inspect the **local supervisory committee** and to conduct an inquiry into facilities available for elementary education;
- **over the sub-prefect and the regional chairman.** The sub-prefect had to inspect the schools for each borough every six months and the regional chairman once a year. After their

inspection both were required to submit their reports about the state and conditions of schools to the Ministry of Education;

- **over general inspectors in schools.** The Director of the National Pedagogical Institute (**the Didaskalion**) usually was the general inspector for the primary schools. His duties were to visit each school once a year and to oversee discipline of the teaching staff. Over the years the inspectorate expanded and the roles it performed in the educational service became increasingly complex and important.

Under the 1834 Act, which is when the Didaskalion was established, municipalities and communes were responsible for maintenance of schools and payment of teachers. Financial provision for the system was made by the Government. Greece was the first country in Europe which introduced free education and compulsory attendance in elementary education. The latter was secured in 1833 for the primary school sector and in 1834 for secondary schools. The provision of funds to schools, however, was only for secondary education despite the fact that **elementary schools continued to provide the form of education received by the vast majority of people in Greece.**

The Education Act of 1836 introduced three-year primary schools and four-year gymnasia. The main aim of the gymnasium was to prepare students for higher education. The educational system in

Greece gave a higher priority to the moral, theoretical and spiritual functions of education than it did to practical, technical and economic purposes (Kazamias, 1967). The secondary education system remained unchanged until 1929. In 1836, the first technical school, called the 'Sunday School' because it functioned only on Sundays, was set up by the decree 10/22 of May 1834. By 1914 this school had developed into the Technical University of Athens (the Ethnico Metsoveio Polytechneio).

The historical review would be incomplete without some mention of the part played by the private sector initiative. In 1836, as the State by itself was not able to develop an effective education system, it allowed private schools. This particular kind of schooling was only for a specified social group.

In 1836, the pupil-teacher system was introduced. Suitable young people, who had normally been educated in elementary schools, were selected to become apprentices or pupil-teachers. Selection was made from the best pupils in the primary schools by the school committee. The pupil-teacher system offered able young people the opportunity to enter stable and respectable employment. The pupil-teacher system remained crucial to the supply and training of school teachers until 1880.

With the Act of 1837 the University of Athens was established according to the German pattern. More specifically with this Act all the management policies concerning Universities were established and in

accordance with article 2, the University of Athens was erected with four faculties: theology, law, medicine and philosophy.

The reforms of 1834, 1836 and 1837 provided a useful beginning but did not presage an objective analysis of the country's needs. The educational system, although it remained crucial for the country's development continued with few changes until 1895, and hence was unable to meet the country's fundamental educational needs. The continuous involvement of the State in education was seen as a threat because it attempted to run schools in connection with its own self-interest solely in mind. The significant influence on political and educational policy from Germany from 1833 to 1862 (which had a highly centralised system) was clearly intended to promote strong central government in Greece. The State sought to retain an important place in the education service ever since. Indeed, free education was a significant innovation but it was only for the secondary level of education; as already has been said, elementary schooling was the main form of education received by the majority of Greek pupils. The system of 'free' education served only the higher social groups at a time where the provision of education for the children of the poor was an important means of social formation. Local education authorities (LEAs) had the delegation of the dissemination of payments to elementary schools. However, they should have taken more effective charge in the area of financial provision in primary schools. There was a real need to broaden the financial assistance to

elementary education and at the same time put the system of government aid on to a firmer and more regular footing.

Until 1890 no changes took place to the basic structure and provision of the educational system in Greece. The Education Act of 1895, however, arranged primary schools in three categories: the ordinary (four classes), the grammar (four classes) and the full-function (six classes). A number of grammar and full-function schools opened especially in urban areas. In practice grammar and full-function schools 'gave' unequal educational opportunities to Greek pupils, especially favouring the upper social class in society. The Act of 1895 brought some dramatic changes. In this Act provision for the permanent appointment of teachers was specified and the installment of headteachers in primary schools was determined.

For each region there was an inspector who was appointed to inspect the schools and at the same time be responsible for the efficiency of school operations. Until today, the inspectorate has operated on a denominational basis but it remains an important and influential component in the control and development of the whole educational system. Moreover, each region had its supervisory committee which consisted of five members. The duties of the committee were to determine the number of teachers in the region. It was the formal 'employer' responsible for recruitment, dismissal and appraisal. It was responsible, too, for the distribution of various grants for the benefit of schools. If the inspector failed to remedy the educational deficiency in an area, arrangements for the election of a

'new' inspector had to be made by the committee. The committee was given extensive powers to provide equipment, maintenance and teaching staff to elementary schools.

In 1899 there was an attempt at another reform concerning the higher grade inspectors who would exercise control over the regional inspectors and who would be responsible for the constitution of a central supervisory committee. In addition to that there was an attempt to abolish the three categories of schools, established in 1895; and to enhance the position of women in schools and, hence, in society (Dimaras, 1978). As Greek society was suffering from political instability the reform of 1899 did not become a legal statute.

Although educational provision in Greece can be characterised as a blinkered approach, the establishment of the General Inspector was a crucial reform for the further development of the system. The Act of 1895 simplified administration by placing more powers in the hands of Local Education Authorities. The Act attempted with some success to provide efficient schooling through the regional committee and General Inspectors who began to offer aid towards the recurrent expenditure of schools. As a consequence government exercised less detailed control on educational direction. This Act encouraged LEAs to own, maintain and operate a large number of elementary schools. Sixty years after the establishment of the formal education system, however, no great progress in primary and secondary education as a whole had been effected. Technical and vocational education although they 'appeared' from the early stages, were not included as

part of the main provision of the Greek educational system. This weakness was manifested once some sections of society became visibly disadvantaged. Rich people, on the contrary, continued to receive high prestige education. Children from the large towns and cities had better chances of attending school than pupils from rural parts of Greece. Thus, there were increasing pressures for a major measure to extend educational provision because there were concerns about social order if more children (especially of the poorer classes) were not fully occupied in schools.

The first major education act for the twentieth century was passed in 1911. A grasp of this act is crucial to an understanding of the Greek educational system in the first quarter of the twentieth century. It brought some improvements as far as centralisation was concerned and made some important changes (Evangelopoulos, 1987): the composition of the regional supervisory committee was limited to three members instead of five as had applied since 1895. A central supervisory committee was convened in Athens which consisted of five members, its duties being consultative, disciplinary and administrative.

Three years later, in 1914, a few terms of the reform of 1911 were changed. According to Law 240/1914:

- the appointment of teachers was removed from the power of Local Education Authorities;
- the number of inspectors was increased to 17 and school hygiene standards were set;

- a new education committee was convened with the exclusive privilege of inspecting the schools.

In April 1915 there was a formulation of the duties of headteachers. According to this new Law the headteachers had not only administrative and supervisory duties but also the responsibility for the whole of the organisation and decision-making in schools. However, the success of management comes not from years of teaching but often stems from effective co-operation between the headteacher and the deputy. The headteacher should create the 'right' school environment and inspire and stimulate the members of the school unit.

The temporary Government of Thessaloniki issued a new reform in 1917. Again this reform confined its attention to the General Inspectors and their duties which were mainly to control elementary schools and the training of the teaching staff.

All the reforms that took place at the beginning of the twentieth century attempted to promote Greece's democratic, economic and political performance in an endeavour to keep the country 'stable'. In 1920 two universities were established in Athens:

- the Agriculture University; and
- the University of Economic and Trade Science.

Given the fact that until 1920 four Universities were established, all of them located in Athens, we may suggest that elementary education compared with higher education was neglected. The reforms brought to notice some drawbacks in the Greek educational system such as (Bouzakis, 1987):

- lack of technical education;
- lack of provision of education for the poorer sector of society;
- a shortage of buildings;
- a highly centralised educational system.

In 1913 the Liberal Government in Greece made an attempt to reorganise the school system and tried to solve the 'national' problem of the language by extending 'demotike'¹ as the official language in education. Unfortunately because of political interests the plan was abandoned (Dimaras, 1978).

In 1929 attendance in elementary and secondary education was extended to six years and the Hellenic school was abolished. Law 4653 in 1930 brought additional changes in educational policy. According to this new Law the country had a general programme for education. Committees were separated according to their administrative and educational duties. Moreover, there was an attempt

¹ 'demotike' is the living language of the Greek people. The spoken language 'demotike' is considerably different from the ancient Greek ('katharevousa'). For further details about demotike and katharevousa see Papanoutsos E. P., 'Educational Demoticism', Comparative Education Review, Vol. 22, No 1, Feb. 1978, pp. 46-50 and Pagkakis Gr., Introduction in public administration, Athens, 1988.

to bring about decentralisation in secondary education. The same year, the University of Fine Arts, and seven years later another University, Panteios University of Political Sciences, were established. Again both were located in Athens.

The main disadvantage of the Greek educational system was that it did not prepare children according to the needs of contemporary society but prepared them only for higher education. The composition and the separation of the committees was a positive 'step' to progress because it removed several functions from central government and contributed to the decentralisation of the education system. However, the power of Local Education Authorities gradually diminished because the financing of education was the prerogative of central government.

Between 1930 and 1970 six universities were set up. They were: Panteios University (already mentioned), the Economic University of Athens, Piraeus University, the Macedonian University, the University of Patras and finally the University of Ioannina.

In 1964 free education was finally established at all levels. All State education institutions operate with financial support from the government and every citizen has equal educational opportunities, irrespective of family background, racial origin and sex. According to Law 4379/64 compulsory education was extended to nine years and secondary education divided into self-contained (gymnasium) and independent units (lyceum). The official language at all levels of education was 'demotike' (OECD, 1980). In 1964 the educational

policy was thus reformed, modernised and made to try to serve the needs of society.

During the period 1967-1974 the military government vowed to destroy most of the above reforms and brought about a revolution in the Greek education system. First of all, it established as the official language of education the 'katharevousa'² and as a result abolished 'demotike'. Secondly, it brought back the old-fashioned educational administration and dismissed several teachers who had evinced inappropriate behaviour or maintained 'communist' beliefs. Finally, the school and scientific textbooks were given free to all pupils and students who attended education in the State's institutions.

In the middle of the 1970's a new phase in the development of Greek education started. In fact, the social pressure for greater access to education, the need for further economic and cultural development, and the demand to modernise the structure and organisation of the Greek educational system, led to a sequence of decisions. More particularly, since 1975 a number of legislative measures have been taken, aiming to match the Greek education system more closely to the ever-growing cultural, scientific and technological demands of the country.

² 'One of the ways the educational institutions and the Church used to establish continuity was through preservation of the ancient Greek language. In time, it was transformed into the common Greek language which kept ancient Greek features and was used in every written form of speech. Being quite difficult and very confusing, it was impossible to use. This fact led to the formation of a new language by the famous linguist and translator, Adamantios Korais, named katharevousa, meaning 'pure Greek' and used by educators and writers. It became the official national language used in books, schools and in public administration and had considerable repercussions in administrative use' (Pagkakis, 1988, p.25).

Following the return of civilian conservative government in 1974 a new constitution and a series of Laws were adopted which brought fundamental change to the educational system. The main topics of educational reforms (Laws: No.186/75, 309/76 and 576/77) which concerned the primary level of education were the following:

- the establishment of a centre of educational studies and in-service training known as KEME;
- a reorganisation of secondary education into three year gymnasia followed by three year lycea;
- attendance in elementary education to be now six years;
- the headteachers to conduct inquiries about the duties and behaviour of teaching staff;
- 'demotike' adopted as the official language of education;
- the function of a deputy headteacher established;
- technical and vocational education have been reorganised and expanded;
- finally, basic training and in-service training of teachers reorganised and improved.

Under the socialist government (1981-89) a series of changes were effected, the most significant of which can be summarised as follows:

- the replacement of school inspectors by school counsellors and heads of the Bureau of Primary and Secondary education (Law 1304/82);
- the transfer of authority to academic departments which replaced the European chair-system introduced in Greece in the 1830's and which is organised in a way similar to American University departments, independent in structure, function and administration and including a related group of subjects (Law 1268/82);
- the establishment of education committees and councils at local and prefectural levels (Law 1566/85);
- the participation of local councilors and administrators in school committees (Law 1566/85);
- the selection and appointment of headteachers and deputy-headteachers were put on a new basis.

For the first time there were appraisal criteria for the position of headteacher governed by academic criteria. Points were awarded for higher degrees but no management criteria were involved. There was a special allowance for the duration of the headteacher's duties. The selection of headteachers and deputies was the responsibility of regional committees (Law 1566/85). The selection of the headteacher prior to 1985 was made according to seniority (Kanellopoulos, 1990 and Kourtis, 1981) and was not influenced by professional and academic standards. The only exception to this assessment was the Law 2517/1940 which determined that the headteacher should have a

university degree and as a consequence the person who had this academic qualification was preferred for the position of headteacher, independently of criteria of seniority. Although some will consider that these were attempts to improve the administration of the education system, from the point of view of management the particular appraisal criteria, e.g. 'noteworthy research', were not relevant for the 'right' selection of headteachers.

With the change of government on 10th of April 1990 until September of 1993 (the party of New Democracy was in power), a new effort was launched for educational reform. Among the most significant changes introduced in the administrative system of primary and secondary education, were:

- the establishment of new criteria for the selection and appointment of School Counsellors (Law 1966/91), replacing those laid down by Law 1304/82;
 - the introduction of a national system of vocational training and instruction;
 - the introduction of obligatory training for the teaching staff of Primary and Secondary Education (Law 2009/92);
 - regulations concerning the selection, appointment and tenure of the principals of school units and educational districts (Law 2043/92).
- Again, although there was an attempt for more creditable, honourable and unbiased criteria for the selection of the headteacher, the Law neither specified with accuracy nor clarity the

legal limits of the power and responsibilities of the headteacher, nor did it determine clear criteria for objective choice.

With change in the political scene in 1994 (the Socialist party came into power), the permanent appointment of top officials of the Directorates of Education was abolished because permanent tenure led to slackness (Law 2188/94, article 3). With the Presidential decree 398 (31-10-1995) new qualifications, criteria and selection procedures were determined for these officials who directed primary and secondary education. More particularly, criteria for the selection of headteachers in school units can be distinguished in categories as follows:

- the scientific and pedagogic constitution (studies and research);
- the teaching experience and service situation;
- the ability of the candidate to exercise effective management.

These criteria were not specific enough or objective enough for the unbiased selection of headteachers. Ignoring the fact that the seniority of the teacher remained as a factor, terms like 'ability for effective management' and 'scientific constitution' are indeterminate and vague.

Today, the educational system (see Figure 1.1, at the end of the thesis) is organised in three main stages (Kanellopoulos, 1993):

- **primary education** (nursery and primary schools). Primary education in Greece is compulsory at the age of 5 1/2 years and lasts for six years. Apart from the large public education sector (which includes primary and secondary education levels) there is also a large private education sector (fee-paying schools) which provide primary and secondary education as well. Table 1.1 (at the end of the thesis, Appendix One) indicates the weekly hours of tuition at the primary schools;
- **secondary education** (gymnasia and lycea). Three years lower secondary education (gymnasium) is also compulsory and the second level of secondary education consists of four types of schools: the three-year general lyceum, the three-year comprehensive lyceum, the three-year technical and vocational lyceum, and the two year technical and vocational schools for those students who do not wish to continue their studies in a lyceum. The educational route from elementary education to secondary is without examinations. However, only those who have attended lyceums (enhancing 12 years formal education) are allowed to continue their studies in tertiary education after a successful participation in the general nation-wide examinations (Law 1566/85);
- **tertiary education** (Universities and technological institutions) By contrast to elementary and secondary education, tertiary level education is provided only in public institutions. In Greece these are: the technological institutions (six or seven semesters) and the

universities (eight semesters for all the departments except for engineering and dentistry which demand ten semesters). Admission to tertiary education requires successful participation in nation-wide examinations (Law 1268/82 and 1403/83). Tables 1.2, 1.3, 1.4, 1.5, 1.6 and 1.7 (at the end of the thesis, Appendix One) show number of schools (nursery, primary secondary) and number of tertiary institutions, teaching staff and pupils and student population.

From the above analysis, taking into account the problems the Greek education system had to overcome, progress has been remarkable. One of the problems, especially during the first years of its composition, was that it was highly centralised. The central government, through the Ministry of National Education and Religious Affairs (MNERA), had all the functions and exercised total control over educational policy. In other words the system was over-centralised. There is some evidence that educational provision was not expanding rapidly enough and that illiteracy for the majority of pupils especially in the early years was accelerating. It is clear that the educational reforms during the post World War II era have brought substantial institutional changes in all levels of education. The main objective of the present system is to fill the gaps. With regard to educational administration we observe that since 1975, Greek governments have tried with various legislative regulations to form an educational hierarchy willing to obey their orders. On the other hand, fundamental

problems such as the devolution of power from the MNERA to Prefectural Educational Authorities (PEAs)³ and the institutions of higher education and the simplification of bureaucratic procedures in the field of educational administration have never been considered by Greek reformers. One reason for this may be that education in Greece is mainly a public service and its administrative structure and function constitute part of the system of public administration. All educational reforms that took place over the years occurred with changes of government. This is a fact which makes us support the idea that each government follows its educational policy and does not contribute objectively to the effective development of the educational system. Thus, it could be concluded that Greek reformers seek modernisation of the educational system through a traditional administrative machinery and by use of anachronistic bureaucratic procedures.

As it will be seen in the next chapters the existing system is not making considerable progress; it is frustrated at almost every turn, over-legalistic and is a politicised patronage system. The continuous and persistent participation of central government in educational policy makes the system highly centralised. Thus, further radical changes are necessary. There is a dual need for appraisal and evaluation. There is a need for qualitative progress. More funds need to be invested in education in order to prepare pupils for work in a healthy economy and not in a swollen public sector.

³ As far as the Greek educational system is concerned, with the term Local Education Authorities we always mean the Prefectural Education Authorities. Further

1.3 Demographic and social factors in Greece

1.3.1 Geographical description

Greece lies at the south-eastern tip of Europe. Its territory, in addition to continental Europe, includes many islands. The total area of Greece is 131,990 square kilometres and most of the area is covered by mountains. Specifically, only about 30% of land surface is arable.

Greece has been divided traditionally into ten geographical units: the Capital Area, the Aegean Islands, Central Greece, Crete, Epirus, the Ionian Islands, Macedonia, the Peloponnesos, Thessaly and Thrace (see Figure 1.2 at the end of the thesis).

Administratively the country is divided into 13 regions and 54 prefectures (in Greek 'nomoi'), which include municipalities and communes. The official language is Greek and the predominant religion is Eastern Orthodox (97.6%). Since 1981 Greece has been a full member of the European Union.

1.3.2 Demographic factors in Greece

According to the population census of 1991, Greece's population is 10,264,156 inhabitants and the population density is approximately 77.8 persons per square kilometre.

explanation for this term will be in the sub-chapter with the title Political Environment in Greece.

TABLE 1.8

Table 1.8 shows the total population, population density and of percentage change for years 1961, 1971, 1981 and 1991.

	1961	1971	1981	1991
Total population	8,388,553	8,768,641	9,740,417	10,264,156
Population density	63.9	66.5	73.8	77.8
Change in (%)		4.5	11.1	5.4

Source: ESYE, Statistical annual 1983 and information leaflet on the 1991 general population census, Athens, 1993.

Table 1.8 indicates that during the decade 1961-71 there was a low rate of increase which was attributed to significant net migration. The increase rate during 1971-81 was because of the inflow of emigrants who returned home from West European countries especially from the Federal Republic of Germany. During the period 1981-91 the rate of increase nearly doubled and this was attributed to the deceleration of the natural increase and repatriation (Papadakis-Siambos, 1995). The accelerating trend of emigration in those years was a major determinant of population change and partly marked the age structure of the present population.

The age distribution pattern of the population shows heavy concentration of the age scale. With 18.7% under 15 years and 14.0% over 65 years of age, the remaining 67.3% of productive population indicates a trend towards ageing. More particularly, during the years 1951-91 there was a triple increase in the population over 65 years of age (from 514,000 to 1,432,000) and a decline of 300,000 children in the population under 15 years (from 2,200,000 to 1,914,000) (Papadakis-Siambos, 1995). Although during the same period the

productive population (ages between 15 and 65 years) remained almost constant with a slight increase of 2,000,000 persons, the above figures strongly indicate decline.

Recent and current demographic patterns in Greece are dominated by the effects of continuous erosion. Greece's total population is falling considerably, the trends are negative and the country is thus threatened. Further decline is highly possible. The expectations based on the number of births up to 1988 (with other parameters being constant), are that by the year 2002-03, the number of births will see a reduction of 26% (Stavrou S., 1995). The post World War II statistics of fertility in Greece were attributed to the social and economic changes that took place in the country during those years (e.g. there was an increase in the cost of raising children) (Kiriazi, 1995). In other words, the deceleration of the young population was strongly related to economic, social and psychological factors. From the demographic changes outlined above one aspect in particular is of direct relevance to effective educational planning: the rise of youth population and its quantitative relationship to the working population. This fact determines both the dimensions of educational demand and the capacity of the economy to satisfy that demand. Limited human resources will need the best possible education in order to secure the survival of the Greek economy and the strengthening of its competitive aspects. The high dependency ratio poses a serious problem for the educational system as to the capacity of the economy to finance it adequately. Tensions between

educational demand and economic resources emphasize the importance of establishing priorities within educational policy and constructing strategies towards attaining those policies.

Since the second World War there has been a flow of population from rural areas to the cities. There has been an increasing tendency to move to the towns and the regions of Attiki and Thessaloniki in particular have recorded an increase in the degree of urbanisation. With regard to geographic distribution at present the results are the same. Large numbers of the population are moving from rural areas to urban, a fact which reveals a decline in rural population and at the same time is provoking radical socio-economic changes. The 1991 census showed that 30.2% of the population live in the area of Athens and 9.5% in Thessaloniki (Kiriazi, 1995).

TABLE 1.9

Table 1.9 shows geographical changes in distribution and overall change in the Greek population over years 1951-61, 1961-71, 1971-81 and 1981-91.

Regions	1951-61%	1961-71%	1971-81%	1981-91%	Overall Change
Attiki	34.4	37.1	19.2	1.5	92.2
Sterea	6.9	2.3	11.0	14.6	36.8
Peloponnesos	-2.9	-10.0	2.6	7.3	-3.0
Ionian Islands	-7.0	-13.2	-1.1	6.1	-15.2
Epiros	6.7	-12.0	4.6	4.7	4.0
Thessalia	10.5	-4.5	5.4	5.6	17.0
Macedonia	11.2	-0.3	12.2	5.4	28.5
Thrake	5.8	-7.6	4.7	-2.0	0.9
Aegeon Islands	-9.7	-12.5	2.5	6.6	-13.1
Crete	4.6	-5.5	9.9	7.5	18.5
Greece General	9.9	4.5	11.1	5.3	30.8

Source: ESYE, Statistical Service of Greece 1973 and 1983, and information leaflet on the 1991 general population census, Athens, 1993.

Table 1.9 indicates that regions with the biggest reductions in population are the Ionian Islands (reduction of 15.2%), the Aegean Islands (reduction of 13.1%) and the Peloponnesos (reduction of 3.0%). Thrake is the only region which has had the smallest increase in population. By contrast the region of Attiki (Athens) has recorded the biggest increase. The chief reason for the tendency of people to move into the area of Athens is the fact that from 1960 Athens dominated every branch of social and economic activity.

The foregoing is reflected in the sizes and distribution of elementary schools, confirming trends represented in rising urbanisation and demographic erosion in rural areas. The geographical dispersal and location which characterise the population create particular problems for educational planning. The manner in which the population is dispersed has significantly influenced the degree of homogeneity of provision which it is possible to achieve within given resource constraints and may also impinge upon qualitative aspects of the instructional process.

These sharp differences in population dispersal patterns have historically constituted a major problem in the provision of education. Their effect on the size and number of schools has recently been augmented and table 1.10 below indicates the difference.

TABLE 1.10

Table 1.10 shows the percentage change in size of Greek primary schools for the school years 1987-88 and 1995-96.

	1987-88	1995-96
one-teacher primary schools	30%	25%
two-teacher primary schools	19%	18%
three-teacher primary schools	12%	11%
multi-teacher primary schools	39%	45%

Source: M.N.E.R.A., Statistical department, January 1996.

The problem manifests itself in the enrolment sizes and patterns of elementary schools and their location. One-teacher primary schools have slightly declined in recent years (Table 1.10). However, the major problem of the one-teacher primary schools is that they suffer from having to teach a variety of age-groups at the same time. If someone considers the Greek social, economic, political, demographic and educational reality, it is easy to distinguish several drawbacks of the one-teacher primary schools:

- teaching conditions are extremely difficult. The social and cultural life of the teacher is constrained and the teacher is isolated;
- buildings are not well-preserved and teaching equipment is scarce;
- schools do not offer good socio-pedagogical conditions for children to learn;
- there is less leisure time and leisure activities for pupils;
- sometimes, the teacher does not have appropriate knowledge to cope with each age-group. Teachers sometimes have problems with the internal management of the school is regard to the

availability of time during the school day and management experience. One-teacher schools tend to achieve low level.

In Greece, there are many mountains and many small islands! On account of this fact there are many small schools with only five to fifteen pupils on roll. This fact suggests that the Greek educational system suffers in effectiveness in both pedagogic side and economic provision.

At first glance it appears that the existence of one-teacher or two-teacher primary schools is necessary because of the geographical characteristics of Greece. Close analysis of all prefectures (with the exception of the small islands), however, leads to a different judgement, indicating the possibility of the merging of a number of school units. By way of example the possibility of reducing school units in the prefecture (nomos) of Aetolias and Acarnanias can be considered. This prefecture lies in the western department of Central Greece. The total area of the unit is 544,759 km and it has a population of 221,000 inhabitants (40 per square km). It is made up of four high mountains, two rivers and four lakes. Because of these geographical features, about two hundred and sixty primary schools operate in order to cover the educational needs of 15,340 pupils. Statistics indicate that in January 1996, there operated in the area ninety-six one-teacher schools (with five to fifteen pupils), forty-five two-teacher schools (with fifteen to twenty) pupils, twenty-nine three teacher schools, eleven four-teacher schools, ten five-teacher schools

and sixty-nine six to twelve teacher schools. These school institutions were staffed by 1,500 teachers. The cost of the operation is approximately 200,000, 350,000, 500,000, 650,000 and 800,000 drachmas in regard to each category of one-teacher to five-teacher schools. Clearly there would be economic benefit from a future merging of the one- and two-teacher primary schools as well as pedagogic benefit.

From recent research of K. Kotantaki (1990) the merging of one and two-teacher primary schools is shown to be necessary on account of the progressive reduction of the pupil population in this mountainous area. Merging of schools can be put into effect as there is a connecting transport network available. The 260 school units could be limited to 125-130 four-teacher to twelve-teacher primary schools (a reduction of 50% in the current number of units). The reduction in one-teacher and two-teacher primary schools and the creation of larger school units would release 141 teachers (from the one and two-teacher primary schools) and all of them could be transferred to urban areas in the reorganisation. In rural areas the teacher/pupil ratio is much lower compared to the one in urban areas. For example in the prefecture of Aetolias and Acarnanias the ratio is 1:10, whereas in the second education department of Athens it is 1:16.

Although the above figures relate to a specific prefecture, they are also indicators of other prefectures. If research is developed in these other areas, pedagogic and economic benefits may also be realised there. In order to solve the problem of the rational distribution

of pupils and teachers in the primary schools in Greece, a number of steps are required:

- parental permission is necessary in order to allow children to transfer to a new merged central school;
- well-designed planning by the state (MNERA) is needed for the economic improvement of the existing system. The establishment of new school units should be determined by numbers of pupils, accommodation and plant. The existence of a good and reliable transport system must be occurred.

Other European Union countries have similar problems relating to small schools. For example in 1988 in Norway 'approximately 40% of primary schools had less than one class per grade and 69 schools had fewer than six pupils' while in Portugal '80% of children attended schools with only one or two classes in 1981' (OECD, 1994, p.9). In 1978 Finland had 42% of the nation's pupils attending two-teacher primary schools, while in France there were approximately 11,000 rural one-teacher primary schools in 1979 (Sher, 1981).

Given that the one-teacher primary schools have a number of disadvantages from a pedagogical, social and economic perspective, and that most of the above countries are currently facing budgetary constraints, governments are looking for ways to improve the quality of education in rural areas with a minimum of cost. According to a 1994

Report of OECD; countries in general have adopted a number of basic strategies for educating pupils in rural areas :

- teaching children in small schools can sometimes be networked. Greece, for example, is trying to follow this approach;
- merging schools to form complexes of up to 200 pupils and sometimes more. Sweden, for example, has schools catering for the first two cycles of compulsory education with between 90 and 100 children from a large catchment area;
- distance learning employing a variety of different technologies. Portugal, for example, has had a distance learning system in place called 'Telescola' for more than 15 years.

1.3.3 The social environment in Greece

According to A. P. Alexander 'society in Greece is largely a blend of bourgeois and peasant elements; there are no sharp lines of demarcation between classes and there is a considerable degree of social mobility' (Kazamias, 1974, p.19). K. D. Antonakaki presents the view that in Greece 'nobility is not recognised and a slave is free on entering Greek borders. There are no problems of racial and religious discrimination' (Antonakaki, 1955, p.22). In Greek society there is, in fact, no hereditary aristocracy of the type encountered in other countries.

The determination of social class in Greece is usually made according to profession, wealth, education and personal achievement

(Petropoulos, 1978). According to Petropoulos (1978) in the rural areas there is no reorganisable form of social class except for the major distinction of landowning and landless peasants. By contrast, in the urban areas the social division is more obvious. An upper stratum includes bankers, leading politicians, a middle consists of businessmen or women and civil servants and finally a lower group is composed of factory workers, drivers and domestic servants.

Looking at the Greek family it can be observed that it remains fundamentally the conservative and basic unit of society with deep roots in the past. However, in the last few years the Greek family has been undergoing radical changes along with the wider society. For instance, in the past parents and grandparents used to live with young people but nowadays, and especially in urban areas, single family units are common (Filiatou, et al, 1983).

The supplementation of family care by social care agencies is a common feature in Greek society. Life-choices of young pupils continue to be strongly influenced, however, by the family (Kokkotas, 1978, and Moustaka & Kasimati, 1984). In Greek society, family 'plays an important role in organising the life of children as well as in affecting, up to a certain degree, choices of future occupation' (Moustaka & Kasimati, 1984, p.49). Parents usually believe that a university degree is a golden-key to life chances. Table 1.11 below indicates the strong competition for entry to higher education in Greece.

TABLE 1.11

Table 1.11 shows the number of applicants and the percentage of successes with respect to the total number of applications for entry to higher education in the years 1968, 1974, 1977, 1981, 1984, 1985, 1990 and 1995.

Year	Applicants	Successes	%
1968	33,086	9,191	27.8%
1974	54,955	14,262	25.95%
1977	72,481	13,223	18.24%
1981	75,206	14,746	19.6%
1984	129,374	23,598	18.2%
1985	149,268	23,666	15.5%
1990	124,658	22,890	13.3%
1995	157,525	45,356	28.8%

Sources: a) Kintis, A. 'Higher education in Greece', Athens 1980, b) Educational policy and planning, Paris 1980 and c) MNERA, Statistical department, 1995.

It is clear from the above that a considerable number of students do not succeed in entering higher education in Greece and as a result a large number of them enrol in studies abroad. At the end of 1991 the total number of students abroad was 28,542 (under-graduate and post-graduate students) of whom 7,476 students were in G. Britain, 5,505 were in Italy, 3,275 were in the USA and the rest were in other countries (Kiriazi, 1995). Table 1.12 below summarises all the above statistics.

TABLE 1.12*

Table 1.12 shows the number of the Greek students enrol in higher education abroad for the years 1978-79, 1983-84 and 1991-92.

Countries	1978-79	1983-84	1991-92
G. Britain	6,655	6,499	7,476
Italy	16,042	13,753	5,505
France	4,175	5,348	2,263
USA	2,937	4,956	3,275
Other Countries	2,716	5,703	6,946

Note*: The numbers in the table includes both the under-graduate and the post-graduate students.

Source: a) M.N.E.R.A., Statistical department, 1979 and Kiriazi, 1995.

From the above statistics it can be concluded that the emigration of students remains a costly factor for Greece.

Technical and vocational education have been reduced to a low status in Greece. The result has been a disequilibrium in the Greek market since there has been a lack of a technically trained labour force (Stavrou, 1995). Only in recent years has technical education gained positive attention and has been able to contribute to the restoration of the Greek economy.

It can be concluded that the structure and the character of the Greek family has a direct influence on the professional direction of young pupils and as a result on their future. Greek families encourage young pupils to aim for traditional professions such as those of doctor or lawyer.

1.4 Economic policy and the political environment in Greece

1.4.1 Economic policy in Greece

The Greek economy for several decades has been suffering from severe problems which are worsening because of bad economic policies of different governments. More specifically, the main characteristics after the World War II era have been high inflation, large and rising government debt and deficit and disequilibrium in the balance of payments. For the last few years Greek authorities have been following a system of controlled monetary and credit policy.

Monetary policy has been governed by the financing needs of the public sector since the Bank of Greece acts as Bank of the public sector. Consequently, the Bank of Greece did not have the ability to apply an **independent monetary policy** which was not related to the budget deficit and the public debt. The Greek government possessed unlimited power to 'draw' currency from the Bank of Greece and strongly affected the money supply and inflation, a fact which led to an ineffective anti-inflationary policy (Nikolaou, December 1994). As a result there was continuous high inflation and an increase in nominal interest rates which consequently created extremely profitable bonds. This, however, was not good for the economy because many people invested their money in these bonds (since they have high interest rates) and so the Greek authorities had the chance to borrow money from these investors to cover the deficit. This situation attributed to the deceleration of Greek economic development, since the money from bonds was not going into profitable investments (e.g. education and industry) but was being used to cover the deficit.

In 1989 an attempt was made to achieve a low inflation rate in Greece. The Bank of Greece tried to apply a restrictive monetary policy by decreasing the rate of money supply and credit expansion from those of previous years.

An anti-inflationary direction was the main characteristic of monetary and economic policy in Greece in 1994. The main targets of the Bank of Greece were to control the money and credit expansion and at the same time to reduce inflation. This strategy was adopted in

the autumn of 1993 and continued to be applied in 1994 and in 1995. Indeed, in 1994 inflation declined steadily and finally, for the first time, at the end of 1994 inflation was below 10%. In July of 1995 inflation reached 8.9%. This was unexpected even for the Ministry of Economics which expected inflation to be around 9.2%. It has to be said that this overall rate of inflation was the lowest for the last 23 years (*Ta Nea*, August 1995). The main aim of the Greek government is to reduce inflation to the level of 7% and 4% in 1995 and 1996 respectively (*Ekthesi dioikiti*, Athens 1995 and *Kathimerini*, November 1995).

The deceleration of inflation is mainly attributable to the following factors:

- the decrease in demand and supply pressures;
- inflationary expectations cannot easily be predicted;
- the decrease in cost of labour (the increase in wages in 1994 was almost the same as the one in 1993);
- the increase in nominal wages was not high (the wages in the public sector and pensions were increased by only 3%).

This improvement may contribute to a rapid economic development in the near future. Economic recovery is very important for Greece because this may open the doors for its participation in the European Monetary System (EMS). Greece is not a member of the EMS and in order for it to join there has to be a commitment of the

Greek Government to follow the joint float of EC currencies, which will made it able to participate in the EMS providing it satisfies certain conditions such as low inflation and low public debt (Buitter, Corsetti & Roubini, April 1993). With reference to this, according to the Bank of Greece, the nominal GDP increased to 12.3% in 1994. The increase in GDP was attributed to the increase of products in the service and agriculture sector but may be attributed to the increase in private consumption. Indeed, private consumption reached high levels because of the increase in real wages and in real interest rates but more specifically the expansion of public debt. Public consumption was stable because there was a slight cut in expenditure and government borrowing requirements were kept at low levels. The general credit expansion of the private and the public sector was 8.9% in 1994 compared with 13.5% in 1993. This reduction was because government borrowing requirements declined to 2,975 billion drachmas or 12.9% of GDP (Ekthesi dioikiti, Athens 1994). At the same time, the financial needs of the government were covered by direct borrowing from the domestic non-bank sector and increase in direct tax which had a rise of 30% compared with those of 1993. Indirect tax had an increase of only 8.5% whereas expectations were for 18.5%. However, the decrease in government borrowing requirements has been attributed to the slight cut in expenditure and to the increase of national revenue.

Greece is the only country in Europe where the increase in GDP was totally attributed to the increase in private consumption. The

Greek economy is entirely dependent on a healthy private sector and a swollen public sector. Savings, especially in periods of economic uncertainty, are positively influenced. More specifically, in Greece, which has had a recession for many years, money supply has been increased up to 111.2% of GDP in 1993. This increase certifies that the higher rate of liquidity comes from the savings of some income classes (Vamvoukas, January and June, 1995) (see Table 1.13).

TABLE 1.13*

Table 1.13 shows the distribution of money supply in the Greek economy for the years 1988-94.

Year	Deposits	Bank bonds	Repos*	Government bonds	Money supply (%)
1988	237.7	384.7		412.3	95.8%
1989	295.6	481.2		467.9	101.7%
1990	421.4	593.9	48.5	1,161.9	103.9%
1991	487.4	598.7	420.9	2,509.9	105.5%
1992	558.2	673.7	978.6	3,513.0	108.4%
1993	711.8	733.7	1,839.9	4,320.7	111.2%
1994	909.9	810.0	800.0	6,108.7	115.2%

Note*: (Repurchase agreement) - Money supply is expressed as % of GDP and the numbers are in million drachmas. Repos is an example of defensive open market operation and with this term we mean that the Central Bank can purchase securities but at the same time agrees with the seller to repurchase the securities in a short period of time, usually less than a week. Repos were introduced into the Greek economy in 1990.

Source : Bank of Greece, 1994.

It is generally accepted that public savings cannot be developed because of the continuous rise in public deficit. If the private sector had not been healthy then the public sector would have become bankrupt years ago. The question is: when will the private sector stop financing the public sector?

Total public deficit was never above -4% of GDP during the period 1950-70, whereas during the last two decades, the public deficit

was over -28.7% and the percentage acceleration of GDP was only 2.2%. In particular, in 1988 the financing of the public sector was increased to 20.8% owing to the deterioration of the budget deficit which in 1994 was 16.5% of GDP. The rise in public deficit was because there was a continuous increase in public expenditure. Public expenditure (although there was a slight reduction) for 1994 was 61.5% of the GDP (Vamvoukas, January 1995). Public deficit for 1995 was 8.9% of GDP and it is expected to decline to 7% of GDP in 1996. The main aim of the Greek government is to reduce public deficit to 4% of the GDP by the year 1997. This target will become reality if the Greek government continue its tight monetary and economic policy (Stournaras, November 1995).

Because of the high public deficit, the Greek government has continuously gone into debt in order to cover the public deficit. However, for many economists public debt is 'a form of intergenerational transfer by which we place a heavy burden on our children for our excesses' (Rabin J., 1993, p.8). Other economists believe that it is important to distinguish the purposes of borrowing. If the money from borrowing has a social and productive character and is used for investments in human infrastructure (through funding education, job-training and health programmes) then the debt will contribute to the development of an economy. People with more education will be productive future taxpayers (since they will earn and spend more) but also the private sector will be more productive and, as a consequence, will contribute to the stimulation of the economy

(Rabin J.,1993). However, the composition of the Greek public debt is of particular interest since a large proportion of State spending is not going into productive investments (e.g. education) but is inelastic and usually going on salaries, pensions, interests, and sinking funds. The reduction of sinking funds and improvements in the tax system will lead Greece to a considerable reduction in public deficit. The effectiveness of the tax system will be improved only if Greece has economic development and growth through the encouragement of investments (Agapitos, June 1995). Table 1.14 below is a statistical comparative study which indicates the non-developmental composition of the public debt in the Greek economy in contrast to the case in some other countries which also have very high debts, but have a social and productive character to their expenditure.

TABLE 1.14

Table 1.14 shows a comparative study of general government net debt interest payments as % of total expenditure for the years 1980, 1985, 1990 and 1993.

	1980	1985	1990	1993
USA	3.7	6.2	6.3	5.7
Japan	3.3	5.5	1.7	1.0
Germany	2.7	4.9	4.6	5.8
Italy	11.1	14.5	17.1	20.0
Belgium	10.0	17.6	20.0	19.2
Ireland	7.4	12.6	15.1	12.9
Portugal	11.9	21.5	19.0	15.1
Spain	1.0	6.6	7.5	10.1
Greece	11.8	17.8	31.8	43.2
OECD*	4.1	6.8	6.5	6.5

Note*: OECD means Organisation of Economic Cooperation and Development.

Source: OECD from the Economic Outlook, 1993.

The most secure way for the covering of the public deficit and debt is the encouragement of productive investments. There is no doubt that in every country, policy on interest rates determines investments. High interest rates discourage investments and the business sector, in order to be encouraged, always hopes for low interest rates. However, it is generally accepted that the deceleration of the real interest rates in Greece is very difficult to achieve because of the high public deficit and heavy borrowing from the Bank of Greece. It is also known that a country like Greece, which faces high financial deficits and debts, in its attempt to search for resources and in order to finance its deficits, is forced to raise the interest rates of treasury bills. In that case other categories of interest rates are increasing (Papandropoulou, February 1995). So, the public deficit and debt contribute to the changes in interest rates. In the case of the Greek economy, the possibility of reducing nominal interest rates depends entirely on a similar reduction in the budget deficit and debt. Otherwise, Greece would have succeeded in introducing low interest rates which in turn would support economic development and at the same time would double public investments, a fact which could partly solve the problem of unemployment (Papandropoulou, February 1995).

From the above analysis it can be concluded that the Bank of Greece has, as a central goal, the fighting of inflation and the maintenance of price stability. But low and stable inflation is not without cost. The Bank of Greece although its top priority is price stability, does not seek to suppress unemployment which in the last

quarter of 1995 was 9.6% (Eurostat, OECD 1995). Although unemployment in Greece⁴ is not very high compared with other members of the European Union (e.g. Spain 22.2% or Ireland 15% for the last quarter in 1995), last years' unemployment in Greece has shown a continuous acceleration. (Greece in 1991 had an unemployment rate of 7%, in 1992 7.9%, in 1993 8.6% and in 1994 8.9%, as stated in *Vema*, on 10-12-95). By giving priority to one only goal, controlling inflation, unemployment has increased. From 1991, unemployment has increased steadily and the expectations for future years are that it will continue to increase. However, occupation in the public sector had an increase of 2.2% last year and the allowances of unemployment had an increase of 30% according to the Law of 1994. This illustrates the continuing expansion of the public sector.

Although the Bank of Greece is attempting to restore its credibility in fighting inflation, it must be noted that Greece does not have the same characteristics as the other countries of the European Union. Greece has a reputation for political and economic instability and Greek inflation remains much higher than the inflation rate of the European Union as a whole. The inflation rate of the European Union is a little higher than that in the three members with the lowest inflation. Germany, an interesting example, is one of the three

⁴ According to Law 1545/85, unemployment in Greece is referred to as the percentage of the labour force registered as unemployed in OAED (Manpower Employment Organisation). Those people who have never worked cannot be registered as unemployed in OAED. The unemployment rate is estimated by the Statistics Division of the Organisation for the Employment of work force, based on data taken from the official registration books of the above organisation.

countries with the lowest inflation (Buitter, Corsetti & Roubini, April 1993). Germany for the last quarter of 1993 had inflation at 3.5%.

Moreover, Greece needs serious retrenchment as far as its high public debt is concerned. The Greek public debt for 1995 was 113.2% of GDP and for 1996 the expectations are that it will be 115.3% of GDP (Klavdianos, December 1995). Greece has almost the highest public debt of all the countries in the European Union and a condition for Greece to participate in the EMS is that it should have a public debt below 60% of GDP. So, 'a blatantly unrealistic debt target is unhelpful for countries with high public debt in designing effective fiscal programmes' (Buitter, Corsetti & Roubini, 1993, p.72).

The determination of the Bank of Greece to control inflation and thus its commitment to price stability must not lead us to the conclusion that Greece has a stable economy. Certain further conditions are needed for future development. Despite the progress over inflation, problems such as low productivity and disequilibrium in the balance of payments have not reached a solution yet. The problem of recession will not be solved until there is an improvement in the functioning and organisation of the public sector. The solution to many problems is that economic development has to be achieved with cohesion and co-ordination of policy instruments. Lack of cohesion prevents economic stability and development while at the same time creating difficulties for the effective performance of monetary and economic policy.

Economic plans are closely connected with the education system since education is an effective and productive investment.

Education policy and development is entirely dependent on the provision of funds. Educational development contributes to economic growth by increasing the technical and scientific labour force which in turn strengthens the productivity of a country. Greece, since it faces many severe economic problems, does not satisfy the conditions for a proper provision of funds to education. So, the economic problems of Greece remain prominent and education faces financial difficulties. Indeed, Greece's expenditure on education remains at 4.2 % of the GDP and the share of public expenditure is 7% while some other countries devoted 20% of their budgets to education (OECD, 1997) (see Table 1.15 at the end of the thesis in the Appendix One). As far as the financing of education in Greece is concerned, it will be discussed extensively in Part Two of the thesis.

(Since the analysis above, details of the situation have changed. These elements can be discussed in later updating of the data. The state of the affairs remains the same in spite of these minor changes.)

1.4.2 The Greek political environment

The Greek constitution is new and came into effect in 1975. Since then the country's political system can be defined as a parliamentary presidential republic (democracy) headed by a President of the Republic. The President of the Republic exercises executive power and is elected by Parliament every five years. However, the re-election of the same person is allowed only once (constitution, article

30). The President appoints the Prime Minister who is the leader of the party with an absolute majority in Parliament. The government consists of the Cabinet (which is appointed on the recommendation of the President) and it comprises the Prime Minister and Ministers. The Prime Minister's duty is to ensure the unity of the government, to direct and determine general policy and to work for the interest of the nation. The Prime Minister occupies a special position in the government and has the privilege to appoint and dismiss Ministers and under-secretaries of State. Ministers are usually members of Parliament (MP's) and they are not civil servants. Ministers (government members) are responsible for general government policy and for their acts and omissions. Moreover, they bear civil, criminal and Parliamentary responsibility with regard to their acts and omissions as they exercise them in the course of their official duties but this does not cover their acts and omissions as private citizens. They are responsible for their private actions and are not protected by Parliamentary immunity. The whole government must enjoy the confidence of Parliament and at the same time 'represent' the general policy of the country according to the constitution and the Laws. If the government does not satisfy the confidence of Parliament, then it can be removed by a vote of no confidence. Parliament comprises not fewer than 200 and not more than 300 members. It is elected by direct, universal and secret general elections for a period of four years. Parliament itself must elect its own President or Speaker. More specifically, Parliament has certain legislative work of which the most

important is to make Laws with an absolute majority of the members present which in no circumstances will be less than one quarter of the total number. From 1993 the Prefectural Representatives (Nomarchiaki dioikisi) were elected by direct elections and are not the imposed representatives of central government.

The general policy of government is mainly carried out by the Ministries. Every Ministry is headed by a Minister and the organisation of each Ministry depends on the type and the range of its function. Educational policy is determined by the government, but the Ministry of Education is the main 'instrument' through which government exercises the policy. It undertakes the planning and implementation of school projects, e.g. organisation and management of schools, distribution of school books and matters concerning school attendance. With Law 1566/85 Directorates of primary and secondary education are responsible for administrative competence over schools, except that certain problems are submitted to political leadership.

The political system in Greece has undergone many changes, such as constitutional monarchies, military dictatorships and parliamentary democracy, since Turkish rule collapsed in 1821. Political science in Greece was almost non-existent before 1974 (the fall of the military dictatorship). Historical circumstances are responsible for such a delay since 'Greece, by the middle of the nineteenth century was a small territory at the southern tip of the Balkan peninsula, which had just emerged from over four centuries of Ottoman rule' (Spourdalakis, 1994, pp.500-501). In order to have a

developmental approach to the study of politics in Greece, political analysis is an essential tool. A number of significant changes in the political environment took place over the past two decades in Greece. A grasp of these is crucial for the analytical and interpretative approach. Through this, we will be able to derive 'richer' insights regarding the political process.

The domestic and international changes that have taken place in the political environment have been attributed to the establishment of the Third Greek Republic in 1974 and the entry of Greece into the European Community (1981). The military dictatorship which lasted over seven years, finally collapsed in 1974 when the first general election resulted in an overwhelming victory for democracy. With the main aim to establish a distinctive and accepted democracy, the trials and purges in the aftermath of the military dictatorship were almost finished by the beginning of 1977. The post-authoritarian period can be divided into two sub-periods (Diamandouros, 1993): a) 1974-1985 and b) 1986 until today. The first sub-period was distinguished by:

- the establishment of democracy in 1974;
- the autonomous participation of the Greek communist party in the political system;
- attempts to restore the organisation and functions of the public services. (The restoration was not radical because it neither comprised reform of administration nor widespread policy changes from those of the dictatorship era);

- the modernisation of the education system, which gave priority to technical and commercial training;
- the participation of Greece in the European Union (on 1st of January in 1981 Greece became the tenth 'full' member of the European Union). In a way this membership determined Greece's relationships with other countries (such as protection against the Turkish threat) and its economic situation (loans and benefits proved to be enough for economic recovery).

For Greece, a country with a very small labour force, high public debt and deficit, and a most inflated public sector, a place in the European Union meant a restructure of both economic and political practices. Markets' liberalisation and the acceptance of the social role of the State both promoted a 'further evolution of political democracy towards additional reform, institutionalisation and rationalisation of its structure' (Diamandouros, 1993, p.11). However, the transformation of democracy was not without a social and most particularly economic cost. Greek politicians in order to maximise their chances of re-election borrowed heavily from both internal and external sources. This phenomenon reflects public-choice theory which highlights that strong incentives for re-election serve to create debt. As a result of this borrowing activity, the Greek public debt is always expanding and thus jeopardises political stability. In other words, there has been a strong correlation between the intensity of debt growth and proximity of all election periods (Baber & Sen, 1986).

As a result of the constitutional reform of 1985 power became centralised within government. In other words that period was characterised by excessive accumulation and gathering of power to the major parties (Makrydimitris, June 1995). The major political parties fought intensely in order to gain this power, yet no constructive dialogue occurred between the principal protagonists. Moreover, the public sector was expanded, the new employees had low qualifications and, as a result, were neither efficient nor effective. So, the organisational structure still remained heavily bureaucratic and old-fashioned.

In the 1990's the ideological differences of the major parties decreased considerably and there was a slow but stable progress towards conciliation. The main parties realised that the complex problems associated with the public policy system were being attributed to the imperfect development, design and formation of policy making. It was decided that policies should be applied with credibility and continuity in order to be effective. In addition, there was a limited appraisal of the hiring procedure for the public sector. There was also an effort towards decentralisation, although this did not achieve significant results. In this period the organisational and administrative changes towards modernisation were in their early stages (Makrydimitris A., June 1995).

Administratively the country is divided into:

- 54 prefectures (nomoi);
- 13 regions;
- 364 municipalities;
- 5773 communes.

At this point it must be said that in the Greek reality, where educational policy is concerned with the term 'local education authorities', we mean the Prefectural Education Authorities, and not the municipalities and communes. With regard to the prefectural level of administration, we see that each prefecture has its own local or Prefectural government at regional level, which is headed by the Prefect. Until 1993 the Prefect was appointed by the government and held the special position of chairman of the prefecture council. In fact, he or she was a formal means of communication between the central ministries and the prefectures and a representative of the government in the various organisations and agencies. The duties of the Prefect included: provision of services and distribution of funds. The administrative departments of the prefectures are not separate legal entities, they execute the decisions of the respective Ministries and may propose measures, changes and activities (the most important one is the consultative action on educational policy) in their areas of competence.

Prefectural Authorities may have had their own property but the main source of finance was government grant which was given without adequate criteria relating to it. The Local or Prefectural government

revenue as a percentage of the public budget had a decline of 3.2 percentage points in 1948 and 2.9 percentage points in 1974 (Tatsos, 1989). More specifically, there was an attempt towards financial and administrative decentralisation but only 52 out of 6,137 local Authorities have their own financial services, a fact which leads to the conclusion that all the rest of the local authorities are heavily dependent on State services. This is a representative example of the most important characteristic of the Greek political system: heavy centralisation. A recent study (Tatsos, 1989) has shown that the allocation of funds in local government did not depend on the needs and the revenue of Local Authorities but were at the absolute discretion of the relevant Minister. The financial system of local government in Greece could be characterised as heavily centralised (as it needs too many regulations for its procedure) and uncertain as far as incoming funds are concerned. The absence of elected councils in the prefectures makes the policy environment appear overwhelmingly bureaucratic and an action area for politicians.

In 1994 the prefectures became Local Authorities of Second Degree under Laws 2218/94 and 2240/94. These Laws also meant that the prefectures became self-governing. Since 1994, the new Local Authorities have enjoyed independent legal status and are only under the legal supervision of the central bureaucracy. Whereas the central governors are appointed, the local heads within the new legislation are elected for four years by direct, universal and secret

ballot. However, Prefectural Authorities still heavily depend, as far as financing is concerned, on central government.

The new Laws had to be implemented to satisfy European Union directives of 1990, although their implementation was delayed until 1994. These Laws gave the head of the prefecture the right to oppose centrally-made decisions. From their point of view, the Prefects thought that they have been provided with an opportunity to become elected to the central government. Close analysis of the relationship between local government and the political parties may show the generation of conflict (Tzonos, 1988). The conflict is determined by the fact that Local government elections are 'party-politicised' and the allocation of functions to the different levels of government are heavily influenced by the power of political parties. As a result the parties exercise control and influence the nomination of local elections and the local heads take advantage of these Laws to promote their own interests (Karvounis, August 1995). The weaknesses of the previous system were therefore reproduced. There remains a need for modernisation and adjustment to fulfill the requirements of the European Union. Specifically, the constitution of the regional and local institutions requires modernisation; while the self-governing of the Prefectural Authorities and implementation of the new Laws need 'honest' and proper interpretation. For the political substructure of the organisation and for the formation of local policy, participation is required from every administrative level.

According to Law 1622/86 and Presidential decree No 51/24.2.87 Greece consists of 13 regions. The main executive instrument of the government for each region is the Regional Council, the duties of which are described as follows:

- it creates and approves the annual and medium term development programmes;
- it has the privilege to distribute public investment programmes according to their local importance;
- it proposes measures concerning financing of public investments;
- and finally it has an advisory duty.

The 13 regions are (Stavrou, 1995): Eastern Macedonia and Thrace, Central Macedonia, Western Macedonia, Epirus, Thessaly, Ionian Islands, Western Greece, Mainland Greece, Attica, Peloponnese, Northern Aegean, Southern Aegean, Crete.

According to the statute 101/75 the regional administration of the country has to be organised to fulfil certain conditions. These include the necessity for decentralisation of decision making, to make it relevant to local social and communicative conditions. As far as education is concerned every region has a large number of employees and this creates confusion within the system as the designation of responsibilities for specific tasks is absent. Co-ordination of effort is lacking because of the absence of a recognised central education committee.

It can be concluded from the above analysis that Greek public administration and, generally speaking, the political system in Greece, are suffering from a number of drawbacks in centralisation and bureaucracy. There is no clear demarcation of power between central and local government. It is clear that Greek local authorities though constitutionally autonomous, do not have enough freedom to solve local problems and central government still restricts freedom by manipulating financial power. However, during recent years there has been a search for a more stable and modern organisation not only at the functional level but also in decision-making. Political instability affects in a negative way educational policy which is being manipulated by political interests and is characterised by lack of continuity. In order for Greece to have a proper educational policy without unnecessary social costs, it is necessary to create a more decentralised structure of decision-making and a less authoritative system without asymmetries and uncertainty. A flexible policy which will be applied with cohesion, credibility and continuity may contribute substantially to the modernisation of the system of Greek education.

1.5 Summary

This chapter discusses the implementation of educational policy in Greece through the educational reforms in the past years. Moreover, it provides the reader with an examination of the conduct of

economic policy, an analysis of the political environment and an overview of demographic and social factors.

The educational reforms which took place over the past years exhibit some common features. All the reforms served the interests of a limited group of politicians whose main purpose was to gain electoral support. When decisions were made, the economic cost of reform was only secondarily considered, and as a consequence the reform programmes were generally underfunded. However, the healthiness of funding for educational reform did not only arise from the lack of consideration of economic factors at the political level but also from a wider macro-economic context. The latter context has been and still is characterised by high public debt and deficit, by high inflation rates compared with those of other members of the European Union, and by unemployment. The combination of these features negatively influences the budget available for the education system. Moreover, before any implementation of reform there were no trial run of the reform that was decided upon and, consequently, success in practice was never tested. The particular reforms themselves also exemplify the over-centralised nature of decision-making in the political system since all of them needed decrees from the President. Therefore, the system is heavily bureaucratic, centralised and not flexible in formulation.

The unfavourable characteristics of the political system in Greece are not only 'obvious' in respect of the implementation of educational reforms. In every European country, the problems of

every day life are usually faced by local authorities and not only by the central government, which has to devote itself to subjects such as defence, foreign and economic policy. However, in Greece the situation is completely different. Although with the Law of 1994 there was an attempt to allow the independence of the prefectural administration, Local Authorities are still heavily dependent as far as financial services are concerned on the central government. The problematic political system affects educational policy in a negative way as it is continuously manipulated by political interests.

Another factor which negatively influences education in Greece is the continuous reduction in the birth rate and the character of the Greek family which creates problems for the effectiveness of the educational system by influencing children to follow a higher professional education and not a technical one. Moreover, the geographical characteristics of Greece have favoured the creation of one- and two-teacher post primary schools, a situation, which has already shown, has a number of drawbacks.

To conclude, educational reforms that have taken place over the years we have considered have proved useful to some degree but they have not brought about an objective analysis of the country's needs. The educational system in Greece must be put on a firmer and more objective footing. In order to achieve development of the educational system, educational policy needs to be applied with continuity and credibility. The stable implementation of educational

policy can positively influence not only educational but also economic development, a fact that should facilitate the adjustment procedure.

CHAPTER TWO

EXTERNAL MANAGEMENT IN THE GREEK PRIMARY SCHOOLS

2.1 Theoretical consideration of management

2.1.1 The meaning of management

Management is a wide subject and has a universal consideration. Almost every problem or ensuing problem associated with an organisation can at least find a partial solution through efficient and continuous management. The widespread use of the term and the substantive amount written about the subject has led to the realisation of its magnitude and importance. One important approach favoured by classical writers as Taylor, Fayol, Urwick, Mooney & Reiley and Brech is the analysis of the nature of management as applicable to managers in all organisations.

The insights of management are very important and helpful in locating and understanding the major developments in this study. Various writers and theories are advanced to explain the subject because organisations, not only in the private but also in the public sector, continually claim and stress that the increase of their management effectiveness has embodied conceptions of improving the achievement of goals by the co-ordinated efforts of personnel. The most important task of management is for an organisation to achieve desired objectives by means of the execution of effective activities.

The greater the intensity of their members, the stronger the impact towards achievements of goals. In this view management can be considered as the responsible power which seeks to strengthen effective behaviour in order to attain the goals and objectives that are the aims of a structured organisation (Mullins, 1996).

Management and managers are a specific need of all institutions regardless of the type (public or private, profit or non-profit) making or the size. Minttzberg (1990) suggests six basic purposes why organisations need managers :

- 'to ensure the organisation serves its basic purpose, the efficient production of goods or services;
- to design and maintain the stability of the operations of the organisation;
- to take charge of strategy-making and adapt the organisation in a controlled way to changes in its environment;
- to ensure the organisation serves the ends of those people who control it;
- to serve as the key informational link between the organisation and the environment;
- as formal authority to operate the organisation's status system'.¹

¹ For further details about Minttzberg see Mullins L., Management and Organisational Behaviour, Forth Edition, Pitman Publishing, 1996, p.417.

The concept of management is significant for the successful functioning and survival of an organisation, and in the absence of it an organisation will collapse. It is impossible, at least at the present time, that organisations (private or public) could function without management because the maximal effectiveness of organisational performance is attributable to its continuous application. As problems move from lower to higher levels of complexity dramatic changes take place in behaviour and force firms to adopt 'effective measures' to operate in as efficient a manner as possible. The more complex the problem, the more it needs an effective organisational solution. A lot of modern efficient techniques of management are available to be used by organisations in order to determine efficient performance. Miner (1980) suggests that the more firms know about the methods and techniques of management, the better their chances to deal effectively with problems they face. However, any analysis of management over time may endorse this as an ideal dependent to the extent that people are being deal with and not inanimate 'cogs and wheels' (Morgan, 1986). Thus, it is significant to note that many writers include, in their analysis, heavy emphasise on the human aspect of an organisation.

To analyse it involves examining the theory of management which might be helpful for managers to improve organisational behaviour, set appropriate objectives, attain them efficiently and at the same time offer the basis to manage the future. So the study of management (if it is appropriate) is really necessary and of vital

importance for effective institutional operation for the following reasons (Mullins, 1996):

- it is necessary to interpret the relationships between the development of management theory and management practice;
- it provides extremely useful insights for understanding recent developments in management;
- it gives knowledge of management theory which helps readers or managers to have a better understanding as far as the nature of management, organisational behaviour and the reasons for concentrating on specific topics are concerned;
- it helps managers to develop ideas and reach conclusions.

The word management is centuries old, and is widely used and subject to many interpretations. Definitions of management abound, but it is interesting to follow the different ways that it has been implemented, since many writers have attempted to define the concept. Various ideas are attributed to the meaning of management but no single approach can provide all the answers. According to Hodgetts & Kuratko (1991, p.4) 'management is the process of setting objectives and co-ordinating the efforts of personnel in order to attain them'. Mullins (1996) on the other hand in his definition recognises that desired goals should be achieved through the successful co-ordination of personnel. However, he provides a more detailed

analysis by regarding management as: 'taking place within a structured organisational setting and with identified roles (Mullins, 1996, p.398):

- directed towards aims and objectives;
- by using systems and procedures'.

From the above definitions it is evident both writers agree that a successful manager is the one who can be a leader, a controller, a one who understands and smoothes problems and addresses needs of people in organisations and one who co-ordinates people's efforts in order to achieve an effective performance.

Other supporters of the human aspect of management are Hersey & Blanchard (1977) who claim that management is a 'job' which is realised through the achievements of desired objectives by the effective co-ordination of the people involved. Koontz & O'Donell (1974) suggest the maintenance of a 'correct' internal environment can be successful only through efficient behaviour of people.

Drucker (1974) agrees that management is an old and elusive term. He claims that the application of the term to business organisations is American and there is no counterpart in any other language. But even in American usage the word management is not an easy term and there is general agreement that all organisations (no matter the type and the size) require management as an effective and efficient tool. However, he also recognises as a denoting function of management that 'management is people' (Drucker, 1974,p.14). This

definition possesses a special position, authority and discipline. Brech (1975) recognises management as a process that can be considered responsible for judgement and decision making in determining plans and for apparent attempts to enhance the status and morale of staff. A broader but similar definition is given by Bennett (1994, p.1) who suggests that 'management is concerned with the deployment of material, human and financial resources, all taking place within a well structured and designed organisation'.

Within this perspective, management determines the ways in which policies of organisations are to be conducted. It is an essential tool for an organisation which helps to attain desired goals. The policy and judgement of the determining plans are usually formulated by the managers who, in turn, have the responsibility for the direction that a firm should follow, and give guidance and motivate staff in order to achieve desired results. Mullins (1996) distinguishes the two terms 'direction' and 'management'. In particular, he claims the two concepts have similarities and are interrelated but also have significant differences. Coulson-Thomas (1990) suggests the distinct role of direction from management to adopt strategic planning and to influence the future. In other words, there is a 'long-term vision' (Coulson-Thomas, 1990, pp.12-15), which enables the manager to foresee with objectivity, or satisfactorily explain, changes or uncertainties that the future may bring.

Harry (1994), instead of attempting to produce another definition, faces management in a wider context by adding the term

'decision-making'. In his approach, attention is given to managerial decision-making and how the company will use available information in making efficient decisions that lead the firm to productive performance. In this view, successful management is the clarification of goals and implementation of solutions. Special emphasis is given to information channels and communications in order to effect decision-making policy.

To the question of whether management is a science or an art, the answer to this question is surely a combination of both. Management requires something of an art because it involves the use of behavioural and judgmental skills (dealing with people), a flexible specialisation of human management that cannot be applied the specific way scientific knowledge can. A person who knows only skills and techniques without locating and understanding the fundamentals of the human aspects is not a manager but a technician. On the other hand, management is a science as well as an art since scientific knowledge is necessary for logical and extensive analysis, in order to resolve the problems that managers often face (Mullins, 1996 and Hodgetts & Kuratko, 1991).

In principle, the term 'management' involves many conceptual distinctions. For the purpose of this thesis, management is taken as a process within a well-structured organisation, accompanied by a principle of effective integration and thus successfully adapting to the changing environment. It has the responsibility of formulating aims

and objectives and attempts to attain them through the effective motivation, guidance and mobilisation of available human resources.

2.1.2 The functions of management

The main aim of every type of firm (public or private) is the maintenance of an effective organisational performance. The manager in the attempt to strive to achieve certain objectives and to progress from primitive to more advanced developmental stages, co-ordinates the efforts of the staff.

As has already been stated, management has a problematic nature and is variable : 'it is not homogeneous and it takes place in different ways and at different levels of the organisation' (Mullins, 1996, p.400).

A certain group of writers favour emphasis being placed upon the formal structure and functions applicable to managers in all organisations (private and public). Saitis (1992, p.25) in an attempt to define management, gives the following definition: 'management is the methodological process of planning, organising, directing, co-ordinating and controlling'. In other words he uses the five elements of management in order to define the concept. Henri Fayol (1949) was the first whose experience led him to conclude that there were five basic functions of management.

Planning This determines the setting of objectives, decides the needs to achieve them (the standards of performance) and develops the

methods and plans of action. According to Hodgetts & Kuratko (1991) the planning process itself consists of the following steps:

- to be aware of the opportunity;
- to set the aims;
- to determine and develop the alternative methods of action;
- to formulate the plans that have to be followed and finally to budget and 'estimate' the plan in order to activate it through setting numerical targets.

In large firms, the word planning is generally known as strategic planning. Decision making is the formulation of choosing among the alternative methods of action under three conditions: certainty, risk and uncertainty (Hodgetts & Kuratko, 1991). There are some plans which help the organisation to a successful achievement of desired objectives and there are others that have large deviations from the principal purpose. However, the basic and primary function of management is planning, a process which bridges the gap between 'where we are' and 'where we want to go' (Saitis, 1992, p.31). The primary aim of every organisation should therefore be the setting of objectives and the determination of plans by which they are carried out.

Organising This is the process of providing human resources and co-ordinating the efforts of staff in order to carry out their activities with maximum efficiency. Once a firm knows its goals and objectives, it can

organise a plan to achieve them. The right organising depends almost entirely on the correct structure of the organisation and the right selection and training of organisational personnel. Staffing is closely related to the strategic planning process which in turn sets the direction that the organisation should follow. Staffing ensures that the firm has 'the right people in the right place' and accordingly can take current responsibilities in attempts to enhance the status and the effective performance of the organisation.

Command or Directing This is the process which includes activities like leadership, motivation and guidance (Bourantas, 1992). In other words it means that managers inspire the morale of the staff, formulate objectives for subordinates, set detailed lists of what has to be done and make sure that everything goes according to schedule. Commanding usually involves guiding, leading subordinates and using 'the right person in the right way'. All of these functions are to promote the maximum effective operation of the organisation and consequently to ensure staff are acting effectively and with optimum results. This function is very difficult as far as managers are concerned because they must have considerable knowledge and understanding of human behaviour, both of individuals and of groups. Moreover, they must have a great deal of knowledge of organisational communication, since it is an essential process which transfers meanings and important messages. In particular Barnard (1938) in his approach to management, argues that authority on the one hand depends on co-operative personal attitudes and on the other on the communication

system. He also suggests that in any kind of organisation communication is an important aspect because, through it, a manager can get a great deal of information. So, managers need to know a lot about communication in order to achieve communicative effectiveness. Human relations theory has received criticism from some writers who claim that it neglects some important external factors such as market forces and is over-concerned with the relationship between workers and their employers (Clegg & Dunkerley, 1980 and Silverman, 1970). However, this approach directed attention to an important concept of organisations which had been ignored in the past (Hughes, 1985).

Co-ordination This is the process of maintaining the efforts of the staff in order to ensure that all tasks are performed with success and properly. In other words co-ordination depends on effective leadership. Leadership is an interesting topic. A lot has been written about it and it has been formally researched. It is regarded as being of vital importance for both staff and work itself since leaders encourage continuous effective communication and have always to harmonise all the activities in order to ensure an effective organisational performance.

Controlling This is the process of measuring progress, checking actual performance, comparing it with standard plans, establishing standards, correcting possible deviations and finally taking corrective action. All these activities are to ensure satisfactory progress towards desired goals. Techniques for monitoring performance in key result areas vary but many of them have a financial nature such as that of the

organisation's budget. Budgeting is a useful tool for exercising control especially of divisional problems where there are no other financial controls.

2.1.3 Management and Administration

In this section, it is important to clarify the confusion over the different interpretations of two terms 'management' and 'administration'. Writers like Fayol may be described as 'classical' since they take sufficient account of the form and structure of an organisation, and direct emphasis more upon management principles and less upon human resources. The idea behind the principles is the guidance of managerial action. However, such ideas have been subjected to a lot of criticism and Fayol (the leader in this approach) for example 'has been praised for his clarity and heavily criticised for his apparent rigidity and authoritarianism' (Hughes, 1985, p.5). While classical management theory often considered human aspects of the organisation important, it mainly understood human motivation and relationships as technical problems. It has been much criticised because its main consideration 'was to make humans fit the requirements of mechanical organisation' (Morgan, 1986, p.29). According to Fayol (1949) all the principles are applicable to all kinds of organisation and help the manager to understand the major developments in management. Although Fayol (1949) advocated that there was no limit to the number of principles, table 2.1 below

summarises some of the general principles of classical management theory.

TABLE 2.1

Table 2.1 shows definitions of general principles of classical management theory.

Principles of classical management theory	Definitions of principles of classical management theory
Authority and responsibility	They are interrelated. When authority is exercised, responsibility arises. There must be a balance between them. Responsibility cannot exist if authority is not executed.
Centralisation	Is always present to some extent but may be variable.
Esprit de corps	Is the process which harmonises and smoothes the organisational performance. It is necessary for every kind of organisation since it helps to defuse uncertainties.
Equity	Is the process which enhances the status of staff and encourages and motivates them.
Unity of Command	An employee receives orders from one superior only. This principle is closely related to that referring to authority and discipline.
Discipline	Obedience and application. Essential tools in an organisation which respects agreements.
Division of work	Specialisation is the key concept for this principle. It helps to produce more with less cost and effort.
Initiative	A source of strength and encouragement at all levels. It helps the organisation to retain authority and discipline.
Subordination of individual interest to general interest	Fair agreements of interest between individuals and groups.

In contrast to Fayol, Mooney & Reiley (1947) place attention on only three principles: co-ordination, scalar (line of authority from

superior to subordinate) and finally functional (specialisation and division of work).

From the above-mentioned considerations, it seems that classical theorists, when they were designing an organisation, ignored, to a considerable degree, the human aspect. As an engineer designs a machine, similarly the classical approach conceived organisations as networks of interdependent parts.

One of the main reasons for the confusion of the terms 'management' and 'administration' seems to result from the translation of Fayol's book (1949) in which the direct translation for both words was administration. Fayol's interest was in the administrative side of operations and recognised the above principles as a set of 'administrative principles'. However, even in the dictionary there is no clear definition for both terms. The two words tend to be synonymous and were used according to the preference of each writer. It is true that people nowadays believe there is a difference between the two terms. However, the difference is not easy to describe (Mullins, 1996). 'Administration' has sometimes been reserved for public affairs, while 'management' has been applied more to business concerns. However, it recently appears that the term 'management' is increasingly used for the public sector as well. Since there is no satisfactory explanation for the difference between these terms, in this present thesis 'administration' and 'management' will be used interchangeably.

Within this perspective, it is also important to examine whether or not management in the private sector is the same as management

in the public sector. Although it has been recognised there are some significant differences (that will be stated later in this section) between management in the private and public sectors, they both face the same general problems which require managerial action. It is fundamentally accepted that private sector businesses are different institutions from public organisations. The major difference is the fact that 'business leaders are driven by the profit motive' (Osborne & Gaebler, 1992, p. 20) whereas public institutions are mostly concerned with providing services for the community. Osborne & Gaebler (1992, p.20) claim that 'government cannot run like a business'. Osborne & Gaebler (1992) and Mullins (1996) state that the distinct role which distinguishes public organisations from private are:

- business firms are earning their money from their customers whereby public institutions primarily earn their income from taxation;
- the public sector 'works for the good of the community' whereas businesses are run for their own benefit;
- the public sector has to move slowly whereas private sector decisions have to be quick;
- the public sector is open and democratic, therefore, decisions have to be applied slowly; the level of trade union involvement is very high compared to the private sector;
- profitability in private firms is easy to measure but measuring the performance of services is extremely difficult;

- the public sector demands uniformity of treatment (serving everyone equally) and has more rigid personnel policies such as fixed salaries based on general pay scales.

Smith (1995) suggests that the accountability of a public sector organisation is the most fundamental need of its principal. In the public sector, there is an increasing need to give an account of performance and thus, to control it. To a greater or lesser extent, the public sector must give an account of its services since public services are monopolies. In the business sector there is no direct control on management since the products are competitive and customers have the sanction of taking their custom elsewhere. So, accountability is an essential need to secure efficiency and effectiveness. If accountability is faulty or missing then the public sector cannot pursue its objectives, and may have no incentive to use available resources in an efficient manner and therefore effectiveness will suffer. All these considerations are the main concern for the users of a public organisation funded by taxpayers and / or central government.

These differences lead to the conclusion that management is not the same in the private and public sectors. However, there are certainly some important similarities. The general problems are the same and the basic functions and principles of management can be applied in any kind of organisation (public or private). Hoods (1991) recognised among the seven characteristics of public management, the importance of the financial devolution to service units and the

explicit standards and measures of performance for those units. The effective performance, the setting of objectives, the design of a determining plan and the achievement of the desired goals are common activities of management and consequently can be implemented in both private and public organisations. Fell (1990) argues that management in private firms is equally relevant to public institutions, even in government departments.

2.2 Educational Management

2.2.1 Management and Schools

The use of the term management in education is controversial but there is justifiable reason for this because of the fact that teachers are often confused about the concept of management. Education and Management are two large and complex terms. Many definitions can be found in the academic literature for both terms although there is a reluctance to use the term 'Educational management' and more particularly to apply the methods and techniques of management in education. Confusions are possible since there is no clear agreement about the meanings of the words 'educated' and 'managed'. The similarities of the concepts involved in education and management may lead to confusion which stem from the fact that teachers fail to understand the differences between the two terms and this creates imbalances in the school organisation. In this thesis an attempt will be made to integrate or reconcile the various disparate approaches

available or to consider how, if at all, educational management differs from other kinds of management.

Management is usually concerned with human activity and the term itself includes many values, techniques and behavioural patterns. According to Brooksbank (1972) all these techniques and values can be applied at all levels of education since all of them face the same problems and accordingly established management techniques are appropriate. Besides, in the early 1980's, there were a lot of developments in school management, a variety of which seemed to dominate throughout the decade. Education and Management should coexist for the health of the school. 'Education' can be defined as the learning process which has a substantial influence on a pupil's behaviour and personality and more particularly offers him or her the chance to become a skilful and responsible citizen. In contrast, 'Management' has a considerable number of definitions but as far as the present thesis is concerned the concept has already been defined in the previous section (2.1.1, p.64). For educational management the same definition of management will be adopted by simply adding the phrase: 'explicitly exist to provide education' (Paisey, 1981, p.15).

The demand for school improvement forces the education service to identify the underlying principles of management and to concentrate on management resources in order to serve and secure school improvement. Dunham (1995) suggests that school management is critical and essential. In particular it is critical for:

- it helps the head, deputies and senior teachers, to focus on publicly recognisable achievement and to implement policy-decisions successfully since there is an acute shortage (at the level of general education) in advisory services on managerial aspects in local education authorities;
- it helps the headteacher and senior staff to be concerned with efficient administration, to set clear targets and motivate, and finally to implement effectively the large number of needed curricular and organisational reforms.

Schools are usually distinctive public organisations that are treated as a separate category. The real differences between the sectors (primary and secondary) as well as between the types of schools within each sector are usually recognised in terms of pupil maturational considerations (Paisey, 1981). However, there is a trend to unite all schools (sectors and types) as public sector organisations. Consequently the present thesis will draw on a universal literature of educational management for all sectors of schools (primary and secondary). A school is a formal organisation meaning that it consists of a group of people who through the division of their work, organisational structure and system and moreover through their successful practice strives to achieve desired objectives (Saitis, Sourtzis & Tourtounis, 1996). With this perspective, human relations theory has found expression in a variety of ways in educational management. Education possesses special characteristics. It has an

important commitment to ensure that the progress of pupils is monitored and recorded, since teachers and the other school staff (as valued members of the wider community) are responsible (at least to a considerable degree) for positive human behaviour and development.

Human aspects of management continue to demand the closest attention in education. Nicholson (1989) identifies seven characteristics of educational management which can be outlined as follows:

- personnel management (right allocation of duties among the staff and the reasonable maintenance of balance in the work of teachers carried out inside and outside school);
- maintenance of effective communications;
- fostering a sense of community;
- setting of objectives;
- maintenance and support of collective responsibility;
- motivation of school staff;
- direction and design of organisational planning.

Close analyses of management in schools leads us to the consideration that the process of management is divided into specific tasks which commonly face managers in schools. The manager in schools has to arrange the subjects of the syllabus and how they are to be managed since this is how educational institutions are organised. The key tasks of educational management tend to be like the functions

of management theory (planning, directing, controlling, organising and co-ordinating) and are also interdependent in a variety of ways. In this thesis a framework will be developed in an attempt to bridge some important gaps commonly found for some areas of educational management. Eraut (1988), Paisey (1981) and Bell (1988) identified four necessary skills or tasks which embrace the major areas of education.

Technical tasks are those which can be described as educational practice. They are the 'know-how' of the primary tasks of education. They cover the choice of policies and practices such as teaching methods, curriculum strategies, and external relations. They compose the knowledge of specific 'professional' procedures which 'run the school' with specific techniques in regard to what is educationally worthwhile. These tasks not only require situational knowledge (how people 'read' a situation) but also involve personal theories stemming from educational theory.

Conceptual tasks are those concepts and ideas that a person involved in education has to use. They include the ability of comprehensive understanding, analysing problems, implementing policies, integrating possibilities in order to have critical control over the experience of school. These tasks help the educator to cover and to solve a large range of problems commonly faced in educational management.

Human Knowledge tasks are very important for decision-making and play a vital role in a manager's life. They affect the school structure,

the development of staff and policy-making. Knowledge of people is generally recognised of vital importance. The tasks are mainly concerned with the judgement and encouragement of people.

External tasks. A main purpose of the school is to create a favourable image in the minds of parents, governors, the local education authority and a host of other groups which have an interest in it. These tasks have a close relation to the roles of head and the senior staff of any school who have to supply an added dimension of managerial responsibility in order to promote the school's positive public image. They have to control the flow of information, to measure the teachers' performances, to achieve organisational effectiveness in order to create a favourable external environment.

Effective management demands that the manager in a school should keep a balance between these tasks, otherwise effectiveness will suffer. This means that the teacher as manager has to strike a balance between tasks in order to attain efficiency. In order to achieve this balance (on the assumption of prescribed educational values) the manager, whether the headteacher or a teacher, has to do more than state and impose a view or a course of action.

2.2.2 The Manager in School

Educational management is concerned with all human activity in school and it is widely recognised as the most important tool which forms the school as an ongoing organisation. School management helps schools to maintain the processes of teaching and learning. The

relationship between pupils and teachers is of central significance, therefore special emphasis has to be given to human interactions. Management of human behaviour is increasingly recognised to be effective when human needs are met.

It is widely accepted that schools are not easy places to run, therefore the purpose of this thesis is to emphasise the importance of effective and efficient management within schools. Teaching involves considerable knowledge of management since lack of it may lead the teachers to run their school unsuccessfully and to fail in their task of managing it as efficiently and effectively as possible.

In order to bring schools to the desired point of being harmonious, proper organisations with an effective performance, teachers, and especially headteachers (who have overall responsibility for the school) need to have management skills. Fullan & Stiegelbauer (1991) suggest that in any school, leadership determines the quality of what happens. Realisation of the need to have a 'good educational manager' comes not only from education itself but also from the field of general management. In different schools it is possible to find excellent teachers but it is sometimes difficult to find academic achievement of high quality unless the headteacher or the senior staff are offering appropriate leadership. Perhaps in a small school the role of the headteacher is simpler and more easily becomes adequately performed but as the size of the school grows there is an increased need for effective leadership at all levels. For this reason there is a sense that all teachers should be acutely aware of managerial

responsibilities. Most teachers (if not all) should play a developing role in the management of schools. Although the headteacher has overall responsibility and plays the fullest part in various aspects of management of schools, **good teachers** are expected to participate to a significant degree in management activities if the school is to work on the basis of involving the whole staff in making major decisions. In order for school teachers to cope with the increasing demand for school management effectiveness they must be able to work as a team as well as being individually effective classroom teachers. The overall quality of a school depends on the ability of the headteacher to support colleagues, delegate responsibilities and develop programmes agreed within the staff. Collectivity does not diminish the overall responsibility that the headteacher has for the work at a school. The headteacher retains the ultimate responsibility for the maintenance of good order and it is crucial that the head has a sense of commitment to the school that is recognised by pupils and parents. The successful leader supports individuals and makes them feel valued members of the school community. The role of the headteacher is however a complex and ambiguous management role and it will be extended in the next chapter.

2.3 Central Government: The MNERA

2.3.1 History and role

Educational policy has effects on the lives of most citizens and the impact is not only wide but also very deep. The main purpose of a country is to maintain the standard and quality of life of its citizens from its own resources, and a deeper awareness of the vital need to develop the skills and talents of young people to the full has spread throughout society (Kourtis, 1977). The education service is seen as a most significant factor in national economic survival. In Greece, the responsibility for national education policy lies with the Ministry of National Education and Religious Affairs (MNERA). The MNERA was founded in 1822, by the first Epidaurus National Assembly, and its competencies included all the affairs of church and education. By Royal decree of 15th April 1833 it became the Secretariat of State 'for the Church and public education' and the duties imposed on it were to secure action to promote the education of the people. Eleven years later its name was changed into the Ministry of National Education and Religion, a name which it 'carries' until today.

From 1822 until today two hundred and forty-five education ministers have been appointed. This means that the average duration of each minister has been eight months. As has already been stated in chapter one, the main reason for this fact is political instability. The duty of the MNERA is to promote the education of the people of Greece and the progressive development of institutions devoted to that

purpose, as well as to secure effective execution of activities and to have under its control the direction of national education policy.

According to the 1975 Constitution (article 16), amended in 1986, education in Greece is under the supreme supervision of the State and is conducted at State expense. As it has been noted above the State's supervision and control are carried out by MNERA. This is the highest administrative unit of education in Greece and is under the jurisdiction of the government (Presidential decree No 147/76). Therefore, the Ministry of Education formulates educational policies according to the direction of the political party in power. It transforms these policies into Laws and submits them to Parliament for debate, after which (with occasional amendments) they are approved. The Ministry is then responsible for implementation and facilitates action through decrees, directives and circulars addressed to the regional and local authorities, to the entities of public law or to the civil entities that it supervises. The authority for educational policy clearly establishes the interdependence of the central and local areas, although the position of central government as senior partner is implied to secure action by local authorities. The Ministry also follows up the implementation of these laws, and can intervene if necessary to adjust or correct their implementation. It also delegates responsibility for implementation to its regional authorities, irrespective of their degree of autonomy.

Moreover regulations made under the appropriate sections of the Constitution prescribe policy in precise detail on matters such as

school sessions, school attendance, curricula, establishment of schools, appointment of teachers, pupil issues, financial arrangements and expenditure and school operations. It is also responsible for the drawing up and management of the two annual education budgets (current and capital) apart from the credits allocated to the prefectures. Since all activities or processes imply some expenditure, it is inevitable that the Ministry of Education should exercise control over the majority of the operations and particularly the most important ones.

According to the Presidential decree No 147 / 1976, the present structure of MNERA, formed of certain Divisions or Sections, each of which deals with a clearly defined block of work (see Table 2.2 at the end of the thesis, Appendix One). However, close contacts are maintained between the Divisions on all matters of common concern and this principle is followed throughout the central administration of the MNERA. The Divisions which have the overall responsibility for subjects concerning primary education² can be described as follows:

Personnel Division This is concerned with the development and application of policies governing manpower planning; recruitment, selection, placement and termination; career development; terms of employment; working conditions and employee services; formal and informal communications and consultations at all levels.

Administrative Division This deals with the establishment and organisation of the schools in primary and secondary education. It is

² For further details about the administrative structure of Primary Education in Greece, see Figure 2.1 at the end of the thesis, Appendix One.

also concerned with the creation of new appointments for the school staff and the development and application of governing policies.

Economic Division This has certain responsibilities concerning financial provision, education expenditures, school budgets, and generally speaking, all economic aspects of primary education.

Division of Equipment This has the duty to secure provision of equipment in primary and secondary education, to identify the needs of each school individually and to ensure that equipment is available in sufficient quantity for all pupils who are able to attend school, in order to offer a variety of instruction and training which is desirable in view of their ages.

Division of educational service This facilitates a great deal of educational initiative in matters such as teaching methods, approval of courses, work on curricula and the training of school staff.

In addition, issues concerning teachers' status are dealt with by two Central Councils (one for primary education and the other for secondary education) within the Ministry of Education. The Councils consist of five members each (Presidential decree No 399/95).

With regard to the council for primary education, known as KYSPE, it consists of:

- three directors from the Division of Primary Education who can be replaced by another three directors again coming from elementary education. It is the normal practice to elect two of these members, one as the President and the other as the Deputy of the council;

two regular elective representatives from primary education who can also be replaced.

KYSPE 's main functions are the following:

- the revision of duties from the directors (head) of the Divisions of primary education;
- the judging of disciplinary cases for every Division (central and regional);
- the judging of appeals concerning disciplinary decisions of the Prefectures;
- the distribution of awards;
- the selection of teachers with the best qualifications (from the Law 1566/85);
- the transfers of teachers from one Prefecture to another;
- the permanent appointment of teachers who come from foreign schools;
- the dismissal of teachers;
- the appointment of the directors of the Divisions of primary education;
- the approval and retirement of teachers;
- the evaluation and judgement of all other matters concerning primary education except those which are in the special preview of PYSPE.

Some functions and responsibilities have been delegated to public organisations and other bodies which report directly to the Ministry. Among these self-governing organisations relating to the affairs of elementary education are:

- the School Building Organisation which is responsible for the construction of school buildings and for their equipment;
- the Textbook Publishing Organisation which is responsible for the publication of school books and other educational books and for their distribution to schools;
- the Pedagogical Institute which is an autonomous public body operating under the supervision of the Ministry of National Education and Religious Affairs.

The Pedagogical Institute is responsible for the formulation of guidelines, the preparation of time tables and curricula, the commissioning and approval of textbooks, the giving of vocational guidance, the introduction of new subjects and, the application of new teaching methods. Although the Pedagogical Institute seems to be an autonomous body, the Ministry of Education influences all its decisions and remains responsible for all activities. Within this perspective 'central government is the one which, under bureaucratic and centralised procedures, will change the Pedagogical Institute, in the view of one critic into a 'dead' institution and a 'useless' instrument

since the chief dimensions of the service are settled centrally by the Ministry of Education' (Athanasoula-Reppa, 1992,p.126).

A glance at the existing situation confirms that in Greece: **firstly** Ministers of Education are not usually in power long enough to have full consultations with all the groups concerned with education that collaborate with them in regard to necessary changes that should be made; **secondly** the educational system is a centralised one in the sense that the central administration of the MNERA remains (in spite of decentralisation measures that have been realised in recent years Presidential decree No 45/1993) the main centre for decision-making; and **finally** the selection of KYSPE'S members, who will make decisions for thousands of their colleagues, is not rooted in managerial criteria but political ones. There appears, therefore, to be an acknowledgement that a formalised and systematic selection scheme of government for education is absent from the Greek system. The present scheme is thus unable to assess individual performance, highlight potential or identify training and development needs.

2.3.2 Organisational structure

The responsibility for the functions performed by the MNERA falls upon the Minister of Education, who is usually of Cabinet rank. He or she is appointed by the President of the Republic upon the recommendation of the Prime Minister and is therefore responsible to Parliament, to government and to public opinion for the decisions of the civil service within the Ministry. The two deputy ministers and the

Secretary-general are political appointments and are the minister's chief assistants. These persons make up the political leadership of MNERA.

The above leadership of MNERA is assisted in its work by six general directors each of whom is concerned with certain aspects of the Ministry's work. Following the existing organisational structure (Presidential decree No 147/76) it is observed that each general Division of the Ministry includes a number of sub-divisions; each sub-division is divided up into departments; each of which deals with a clearly defined block of work and is under the charge of the Head of Division. There are, also, 'independent' departments and offices such as those for libraries and historical records which perform duties that concern in one way or another all the other sectors of the MNERA. From this description it is evident that the administrative hierarchy of MNERA consists of six levels. In practical terms this means that a document needs at least five to six signatures before its final 'production'.

At the present time the central service of the MNERA consists of six general Divisions, 35 sub-divisions and about 120 departments (see table 2.2 at the end of the thesis); it has a total staff of about 950 people. Analytically, the academic background of staff in the central service of the MNERA is as follows:

Table 2.3

Academic background of staff in the MNERA

Graduation level	Numbers
Graduates of university level institutions	245
Graduates of technological education institutions	52
Graduates from secondary schools	255
Graduates from primary schools	48
Teachers detached from their schools to undertake various educational and occasionally administrative task in the MNERA	350

Source: MNERA, Athens, December 1995.

From 1st January 1995 until 31st December 1995, 145,000 documents originated from the MNERA. Of these documents 111,000 (76%) were distributed to 8 sub-divisions while the rest of the documents (34,000 or 24%) were distributed to 27 sub-divisions and to seven independent departments (Register of MNERA,1995). Statistics suggest that some sub-divisions received 40-150 documents for the whole year (e.g. sub-division of Organisation and Methods, sub-division for Religious Affairs) while others received 11,000-30,000 documents for a time (e.g. sub-division for Private Education and the sub-division for Financial Issues). In addition some sub-divisions of the MNERA consist of two or three departments and are staffed by four to five employees while others consist of five to seven departments with twenty to one hundred and twenty employees; Finally the services of MNERA are not staffed according to the earlier defined principles of management. This conclusion stems from the fact that in January 1996 there were:

- heads of departments who supervised one (occasionally more) (subordinate) employee;
- departments with strong specialisations (e.g. Statistics and Library) which were staffed by no specialists (statisticians, librarians).

The question which may arise from the above analysis relates to whether or not the MNERA is an effective organisation. Before answering the question it is necessary to note that every large-scale enterprise (public or private) requires many people to keep it going. Wherever many people are working together the best results are secured when there is departmentalising of work among them. This means that in every organisation it must be decided how many subdivisions or Sections and management levels there should be and how many subordinates a superior should manage. Given that the levels of management are expensive and other present problems of communication, planning and control, the structure of such an organisation must be carefully designed. There is no set of rules that prescribes the one best pattern of organisational structure. However, there are guides (e.g. about size of organisation) which help to select the most appropriate structure (Sisk & Williams, 1981):

With regard to span of control, students of management have found that a good number is usually four to eight subordinates at the upper levels of organisation and eight to fifteen or more at the lower levels (Koontz, 1982). Urwick (1955, p.348-49) argued 'the ideal number of subordinates for all superior authorities...to be four', and 'at

the lowest level of organisation...the number may be eight or twelve'. According to Urwick's view, with an average of eight employees for each department, six departments for each sub-division and four sub-divisions for each general Division, thus, the MNERA should have about 119 departments, 19 sub-divisions and five general Divisions. In practical terms, however, the existing structure of MNERA consists of 123 departments, 35 sub-divisions and six general Divisions. After that it might be stated that the process of organising (Koontz, 1982) leads to the application of Parkinson's Law according to which 'Work expands so as to fill the time available for its completion' (Parkinson, 1986, p.14). The over-emphasis on rules and procedures, record keeping and paperwork multiply the numbers of subordinates and officials may develop a dependence upon bureaucratic status, symbols and rules. Ministers of Education do not have much time at their disposal (since they spend a short time in the Ministry, 1.5 years approximately Macrydimitris, 1992 and Chronis, 1993) to apply a carefully designed and purposeful pattern of structure in order to create a clear definition of tasks and responsibilities, work roles and relationships, and channels of communications. Moreover, 'the Ministers of Education lack the knowledge of managerial criteria and specific knowledge on arrangements for carrying out organisational processes and the execution of their work' (Macrydimitris, 1992, pp.17-18). Therefore, the 'Ministry of Education requires people specially trained with precise qualifications and not a general knowledge of philosophy and education...' (Vema, Greek newspaper, 29-9-91)

To conclude: **firstly**, it can be argued the MNERA is an overstuffed, complicated and expensive public organisation, in the sense that it functions on six managerial levels and to undertake the task, the number of employees is continuously being increased. From 820 employees (administrative staff and teachers) in 1990 (Saitis,1990), in January of 1996 there were about 950 employees (600 administrative staff and 350 teachers of primary and secondary education). **Secondly**, there is not enough delegation of power to the lower levels of management because most documentation requires the Minister's signature. **Thirdly**, there is not a rational distribution of tasks (and therefore of employees) among sub-divisions and departments, so that some departments have one employee and others more than five without apparent justification. At the same time Parkinson's Law seems to be in full development since the creation of a sub-division is a result of bureaucratic and political procedures. **Finally**, the composition of the staff of the MNERA may be sufficient for the day-to day executive process. It does not induce one, however, to believe that employees can contribute very much to the promotion of educational development strategies. This is because, **firstly**, the staff of the MNERA, spend nearly all their time in the pursuance of executive functions (e.g. in considering appointments and promotions of teaching and administrative staff) and, **secondly**, the nature of employees' qualifications circumscribe their ability to conduct research

on educational matters or to make suggestions for the formulation of educational policies.

2.3.3 Educational policy in Greece

Several writers on educational policy have found themselves having to cater for two kinds of audience: the students and the practitioners. In order to try to satisfy both, there is a possible danger of confusion. To avoid or at least to minimise this danger it is necessary to provide an analytical integration of the theoretical and empirical features of the study (Howel & Brown, 1983).

Although in many books there are descriptions or analyses of the educational system in different countries, in fact educational policy has attracted relatively little attention. The term 'educational policy' is a polymorphous concept, an elusive one, which is not amenable to a precise and clear definition that is generally acceptable. Because of this, the term demands clarification. It is sometimes used in a narrow sense to refer to formal and authoritative principles or courses of action by public bodies (e.g. governments / states). Others use the term as a synonym for words such as 'plan' or 'programme'. However, some writers do not clearly distinguish the terms 'policy-making' and 'decision-making'. Jeremy Bray (1970)³ for instance suggests that one level or stage of decision-making is to follow a pattern of policy and reappraisal and determine long term goals in order to implement an

³ For more information about Jeremy Bray see Fenwick K. and McBride P., The government of education in Britain, Oxford, 1981, p. 35.

action programme for the achievement of the goals. Policy can be thought of as a guide for taking future actions, for recognising problems or matters of concern, and for making decisions directed towards the accomplishment of some intended or desired objectives. The word policy can be applied in any field of different social spheres including education by taking different forms of expression (e.g. those found in ministerial statements or other papers, or as authorised through legislation and regulation) and being directed towards different ends (e.g. control of activities or provision of new services). In terms of content, educational policy can be referred to public policy, meaning principles or courses of action by public authorities (e.g. the government or other State institutions) and directed toward the promotion of public interests. However, a more general definition of educational policy can be the unity of measures (such as financial provisions, regulations) and procedures that are necessary for the achievement of desired goals through educational institutions. Public educational policy can be divided into four categories (Hough, 1984):

- policy concerned with the functions of education institutions such as student assessment, awards of certificates, student discipline;
- policy concerned with the whole education system (establishment, structure);
- policy concerned with the school staff (recruitment, promotion, supervision);

- policy concerned with the financial provisions of schools and the maintenance of equipment and buildings.

The distinctive public nature of the definition must be borne in mind when the term 'educational policy' is used in the Greek context. In Greek, one does not normally talk about an individual's educational policy, unless such a person officially represents the government or another public authority. In Greek literature on the subject, educational policy is examined as a political process involving the interplay of social and political groups, value choices and efforts to exert influence. Educational policy in this sense becomes an arena of political conflict reflecting the nature and structure of the State apparatus in relation to civil society. Policy and politics in Greece are thus interrelated. Everyone is ready to acknowledge that politics can be found in Greek educational organisations as though they are part of a political system. Educational policy in Greece heavily depends on the personal whims of the Prime Minister and the Minister of Education. Policy formulation in Greece thus, is overcentralised. The Minister of Education usually holds the formal authority for the implementation of educational policy and administration. Within the Greek educational system, political parties and central government are significant 'actors' to the degree that they influence and determine the proposals and decisions for education.

Greek educational policy can be separated into three parts (Polychronopoulos, 1980):

- general educational policy concerned with the whole education system;
- supplementary educational policy directed at subject areas not included in General education;
- administrative or Functioning Educational policy concerned with the functions and administration of education institutions.

Moreover, it has two main purposes which can be described as follows:

- to maintain the structure of the socio-political system and at the same time attempt to solve possible problems coming from this structure (such as equal opportunities);
- to reproduce the socio-political system and to contribute to economic development through introducing new scientific programmes, new technology.

By using examples from Educational Acts which were passed during the period 1975-92, an attempt will be made to present view on the policy-making process in Greece. With regard to the Educational Act of 1976 'on the organisation and administration of general education', it is important to emphasise the following (Kazamias, 1980): after the restoration of democracy in July 1974, the elected government of the New Democracy party in November 1974 started the movement for educational reform. In December 1974 a special

committee was set up to evaluate the system and to propose changes. In the autumn of 1975 the draft of a Bill was distributed to the public, to the teachers and to the unions. In January and February 1976, at a much-publicised conference chaired by the Premier himself, government plans were fully discussed. At about the same time the draft Bill was discussed by a Parliamentary committee consisting of representatives of various parliamentary parties. Government officials discussed features of the reform in the press, on television and at special roundtable discussions. In April 1976 the final draft was introduced into Parliament and voted upon. It was passed and became Law 309 on General Education.

The Educational Act of 1985 'on the organisation and operation of primary and secondary education' can be taken as another example of the policy-making process in Greece. Following the introductory report of this Act to the Greek Parliament in January 1985, its form was based on the 'collection' of views-proposals of various educational, scientific and social groups and on the development of these submissions by a special committee of the Ministry of Education. This report however, does not mention anything about who the members of the 'special committee' were and how they were selected.

Finally the Education Act No 2043/92 'on the organisation and administration of Primary and secondary education' was based on '...the precious informative material of the questionnaire...and on the proposals of the experts' committee of primary and secondary education' (Introductory Report of Educational Act No 2043/92: p.1).

It is significant to note that in 1991 a committee was appointed by the Minister of Education to make proposals for the administration of education. This committee included seven philologists, three mathematicians, two chemists, one architect-sociologist and one economist. Although the reform concerned the administration of education, neither MNERA officials participated, nor specialists from the area of management. Following this and given the inflexible confrontation between the MNERA and the trade union organisations of primary and secondary education on the selection criteria and permanency of tenure of school principals, it is doubtful whether:

- the committee proposals are a result of a systematic study of 'specialists' on education administration issues;
- the drafting of the Bill (2043/92) was based on the 'Principles of the National Dialogue on Education' (Speech of Minister of Education, 7th May 1992).

It is maintained that the on above-mentioned Bills were drafted on the basis of hastily prepared reports and that there is no evidence that systematic research was conducted into the problems and needs of education. Another aspect of policy-making relates to composition of the committees. The criteria for the selection of the members of the committees in 1974, 1976, 1985 and 1991 are unknown. However, representatives were not selected from a wide spectrum of political opinion. No students, economists or sociologists were selected. This

is a usual phenomenon in the structure of educational policy-making bodies in Greece, in the sense that political considerations weigh unduly in the appointment of members of committees (Kazamias, 1980). At the stage of parliamentary consideration, extreme positions in favour of and against a proposal, rather than consensus, are readily adopted. The Greek legislator has often seemed to forget that legislation affects 'closely the lives of millions of citizens' and as Parry (1971, pp.75-76) has noted in another context, 'necessarily has to be based on assumptions about the way people are likely to behave in certain circumstances and these assumptions have to be roughly correct if an Act is to have the effect intended'.

Because of the absence for planning and management control, and the focus of politicians on non purposeful (meaningful) behaviour, the implementation of Education Acts is very often confused. Laws are frequently vague and complex and fundamental problems are left unresolved. In practical terms, this means that some of the articles of Education Acts present a 'vagueness' which results in the issue of interpretative circulars by the appropriate MNERA service (leaflet law 1268/82), as well as consultations by the legal council of State concerning the way the particular terms of the Law should be implemented. In addition, the implementation of most education Acts (e.g. Law No 1566/85) is based on many authorisations by Presidential Decrees and Ministerial decisions. Given that:

- the issue of Presidential decrees and Ministerial decisions are followed by interpretative circulars;
- there is no agency in the MNERA for the codification of the education legislation, it is frequently difficult in the management of both MNERA and PEAs to know if a specific article of a Law is or is not in force at a given time.

From the above examples it is clear that policy proposals for educational reform are made by small groups of educationalists, advisers, scientists or bureaucrats commissioned for the task by the Minister of Education and acting on behalf of central administration and government. Greek legislators thus act on advice at one remove from the national community. Moreover, the decision-making process itself lacks adequate national consultation or responsiveness to the views of a wide stratum of the population which suggests that the process is more arbitrary than democratic. Finally Greek reformers do not follow modern techniques and methods for implementing a reform. No pilot programmes are used for implementing an educational change, no consultants are used and no committees are formed to deal with the problems which arise during the process of implementation. Educational changes, such as the determination of the duties and provinces of authority of school Heads, do not cause expenditure. However, eleven years since their establishment (Law 1566/85) these changes have not yet been implemented. This

reluctance may be attributed partly to the absence of political support and partly to lack of effective management by the MNERA.

As a conclusion it could be said that educational reforms have been a major goal of public policy in Greece during the last twenty years. Today, twenty years after a number of educational Acts were passed, the main concern of the government continues to be the introduction of new changes for further improvement of the Greek educational system (Proposals for the primary and secondary education, part two, 1992). It is true that the educational system needs changes because it is not static. But it is equally true that frequent changes (without a well defined educational policy) in fact prevent the modernisation of the educational system. As Professor Kazamias (1990, p.1) has noted 'the experience of educational reform in Greece has been likened to the Myth of Sisyphus-an everlastingly laborious and unfulfilled task'.

2.3.4 MNERA: The need for a rational supervision

According to Padfield (1975) the basic functions of the State are first the maintenance of inter-governmental relations and second defence against external aggression. These duties remain today, but the State has increased the range of its functions e.g. by creating social services of many kinds, so that we have today what is termed a Welfare State. To focus attention on the Greek political system, it is evident that the effective level of policy making is the Ministry which is supervised by a Minister. Ministries are the main instruments for

putting into effect government policy after parliament has passed the necessary legislation. In other words, the Ministries are required to ensure that the civil services already in existence are carried on efficiently and smoothly until such time as the Cabinet or Minister thinks fit to change them by legislation. According to Gladden (1955) 'civil service' is the name of an important government institution comprising the staffs of the central administration of the State. Although the tasks of the civil service are indeed multifarious and not easy therefore to describe, broadly speaking the civil service carries out the work of the executive branch of government. It follows that the administrative activities of State are distributed primarily among the government ministries and public organisations. A government ministry, thus, is the basic unit of public administration and it aims to find a solution to every matter which belongs to its field as a formal organisation.

Within this perspective, the MNERA gives guidance and directions for further processes and action at all levels of education in Greece. Particularly in the field of primary education, it keeps an eye on the activities of the primary schools and controls their executive functions. In accordance with article No 101 of the Greek constitution (1975/1986) 'the State Administration is organised according to the principle of decentralisation'. This means that the PEAs should be decentralised parts of the civil service. However, developments between central government and prefecture or local government in Greece in the post-dictatorial era have been seen as a process of

centralisation based on ever more pervasive central control and the erosion of prefectural or local government's independent financial base. The MNERA not only has control of legality and the implementation of educational policy (e.g. improvement of curricula, introduction of new courses in schools) but also intervenes in day to day office work. If a teacher or an office cleaner, for instance, is to be employed, it is necessary to have ministerial approval. This simple example show that the PEAs and primary schools are entirely subordinate to the central administration of the MNERA and they can only engage in activities for which they have statutory authority. The government's control puts conflicting pressures on prefectures or local authorities and leads inevitably to the decline of local discretion. The room for decisional manoeuvre of prefecture or local government decision-makers is constrained by central government units. Political channels do exist and influence the relations between central and local government and there are links between local and national political elites. As Crosland A. (1971, p.171) recognised 'all governments are a bit schizophrenic about their relationship with local authorities. On the one hand they genuinely believe the ringing phrases they use about how local government should have more power and freedom' and on the other they disapprove of any pursuit of education from local authorities. So, prefecture or local authorities in Greece can be viewed as political systems. The Greek prefecture authorities need the political parties in order to secure their access to the central government since they have little discretion and the access to the

central government is very difficult on account of bureaucratic procedures.

Under the disposal power of the MNERA, Prefecture Education Authorities have only a limited 'voice' in the decisions affecting their future development and ministerial supervision may be considered as over-centralisation rather than a guidance for prefectural educational development. In other words the day-to-day managerial control narrows the boundaries of PEAs and school independence, serves political interests and introduces excess bureaucracy into the relationship between MNERA and PEAs.

The importance of the concept of dependence and the reason that it is stressed so much (especially in Greece) more than the open reference to power lies in the fact that it admits of reciprocity. Dependence is a source of constraints upon an organisation but at the same time an organisation can act to loosen those constraints. For the particular case of Greece the question is to what extent central government uses its power and to what extent prefecture or local authorities accept the attempts to control them. The degree of willingness to accept central control may vary because not all local authorities resist central intervention. While they bemoan central interference in local affairs, they still do not request specific guidance from the central government.

The above considerations lead us to the question: Can the existing system of supervision be improved? To answer this question it is necessary to examine the term 'bureaucracy' in Greek public

administration as well as the arguments for the central intervention of MNERA. Bureaucracy is not a new phenomenon and in the general literature is a word employed in a great variety of ways so one must be wary about the context in which it is being used. Bureaucracy is a form of structure that can be found in many large-scale organisations. It exists because of the need to solve tangible problems and consequently favours the development of the organisation. However, the term has attracted common critical connotations of 'red tape', constraining standardisation, inefficiency and rigidity.

Weber (1964), the German sociologist, was the first who showed particular concern about bureaucracy and recognised it as the best type of organisation to influence positively political, social and economic life. 'He, in fact, analysed the term not empirically but as an ideal type derived from the most characteristic bureaucratic features of all known organisations' (Mullins, 1996, p.46). Weber did not attempt to define bureaucracy but instead he gave emphasis to the main characteristics of a bureaucratic structure which contribute to persistent and effective operation. These are the following:

- the regular activities of the organisation are allocated in a fixed way among the various operative positions. This means that the division of work (specialised experts in each particular position) favours effective performance and maximises efficiency in administration;

- hierarchy should be applied to all organisations. Every employee in this hierarchical authority is accountable to his superior but this authority is strictly confined to those directives that are relevant for official operations. Any extension beyond these limits does not constitute the exercise of bureaucratic authority;
- uniformity in performance of every task and in reaching decisions is achieved through a consistent system of explicit rules and regulations which enables the responsibility and the co-ordination of activities of each member of the organisation;
- the ideal official is expected to operate and deal with clients or other officials with an impersonal orientation. The exclusion of personal considerations from official business favours rational justice in administration. Stewart (1985, p.83) recognised impersonality as the distinctive characteristic of bureaucracy 'since the aim of the rules is an efficient and impersonal operation. Impersonality is the characteristic distinguishing bureaucracy most clearly from other type of organisation : for example, from that based on kinship, which is found in primitive societies and to a lesser extent in civilised societies in, say, some family firms';
- employment in a bureaucratic organisation is based on technical qualifications. This system helps employees to be promoted according to seniority or the effectiveness of their performance;
- administrative efficiency and effective organisational performance are the expected results of the bureaucratic structure of an organisation.

However, Weber's (1964) concern with discovering all the effective contributions of bureaucracy failed to investigate the disturbances that various elements produce in the structure. As a result he received severe criticism since he neglected disruptions. In order to avoid this danger it is essential to extend the analysis to the study of *bureaucratic dysfunctions*, another area of criticism coming from writers (such as Merton and Gouldner) who question Weber's social structure. Merton (1968) and Gouldner (1954) suggest that the elements of bureaucracy appear to smooth the running of an organisation more than they actually do. Dysfunctions are consequences that intervene in the structure and create problems. The formulation of strict authority conceals defects in operations, obstructs the flow of information and thus, impedes effective management. The promotion system based on merit may prevent many employees from advances in their careers. Tight supervision and control over workers leads to a decline in efficiency since the workers may resist by reducing their amount of work. Formal control and rules, as well as the rigidity of the system will not furnish strong incentives to exert effort and achieve excellent performance. Weber's impersonal relations have been criticised as stereotypical behaviour that lead to the lack of responsiveness to individual incidents or problems (Mullins, 1996). The organisation does not provide an environment of individual responsibility and contributes to the restriction of psychological growth (Argyris,1964).

In the case of public sector organisations the concept of bureaucracy is proposed as an illness of public service, although there is an increasing 'demand for uniformity of treatment, regularity of procedures and accountability for their operations' (Mullins, 1996, p.49). In the particular case of Greece people in their dealings with the civil service, often complain of the increasing bureaucracy and its inability to satisfy temporary demands and at the same time fulfil the aspirations of the nation. During the last two decades, because of the increasing complexity of the public sector and the demand for effective administration, bureaucracy in Greece has had considerable growth. Lack of attention to informal networks and open communications is the main reason why Greek public organisations are not flexible and fluid. The last consideration implies the need for reorganisation of the Greek civil service, which suffers from excessive centralisation. This view is being increasingly voiced. 'There is need for a formal structure. There is also need for a continual review of structure to ensure that it is the most appropriate form for the particular organisation, and in keeping with its growth and development' (Mullins, 1996, p.332).

Since 1950 many attempts have been made to modernise the Greek administrative system. However, little has been achieved (Saitis, 1995, and Makrydimitris, 1996). The short life of governments (political instability) has created over-flexible education policy-making and a plethora of education Acts and Laws. Greek governments spend more time changing the Laws and Acts than thinking about the improvement of the education system itself. The plethora of Laws

creates an enormous burden of work for the officials, and prevents the government from implementing efficient education planning and from modernising the administrative system. The Greek education system has adopted all the management principles from the highly centralised administrative systems of Germany and France in the 1830's. Scharpf (1977, p.343) advocated that 'the policy-making of Germany (more than usual emphasis on central direction and hierarchical control) has failed in three ways:

- the failure of effectiveness in the management of the economy;
- the failure of efficiency in the management of the social-service sector;
- the failure of responsiveness to differentiated, qualitative demands in the performance of all government functions'.

In Greece, the centralisation of power within the capital, Athens, creates many problems both to State and to the citizens. Since the line of authority runs between bureaucratic sectors, the process of decision-making is fragmented. Numerous committees reinforce the anonymity of the process, help to obscure shortcomings and maladministration and weaken the lines of hierarchical responsibility.

The major arguments for central intervention are the following (Saitis, 1983 and Kontis & Madas, 1993) :

- the lack of expert officials to take decentralised responsibilities;
- the demand for efficient and honest administration;
- lack of localised co-ordination and the development of technology favouring the increase of centralisation;
- the demand for the protection of citizens from local abuses of power by the Prefecture Education Authorities;
- the demand for the reduction of corruption in the system. Additional reasons for the need of centralisation are that political policy priorities are implemented and the national training needs are fulfilled.

However, there is the opposite view which claims that too much central direction reduces efficiency through needless controls and ministerial 'approvals'. In other words it makes the administrative system of education bureaucratic and inefficient. Policy-making under conditions of centralisation and of bureaucracy is overwhelming (Lindblom, 1980) and can distort the implementation of policy to a significant degree. The growing influence of centralisation is a counter development and goes against constitutional order for the decentralisation of power from the central government's base. It destroys the PEAs' initiative.

Decentralisation, on the other hand, is a dynamic process and can be defined as the transformation of power, responsibilities and various functions from central to different levels of Prefecture or Local Authorities. The Local Authorities could be free to make decisions and

would only be subject to local political constraints. Less complex structures and maximum administrative decentralisation tend to create more effective supervision, greater initiative in their actions among employees and greater acceptance of individual responsibility (Child, 1984). Giving more discretion to subordinate managers improves their morale and performance. Moreover, it can favour the implementation of a successful policy through inter-organisational networks, since it facilitates the flow of accurate and appropriate information. However, Kontis & Madas (1993) recognise some disadvantages of decentralisation. In particular they support the idea that decentralisation :

- may lead to the confusion of activities and to unclear delegations of power;
- demands more of employees;
- does not facilitate innovative changes and creates difficulties in adjustment to a continuously changing economic environment;
- lacks specific control and cohesion and leads to an increase of expenditure.

The problem of striking a balance between hierarchical levels and controls is acute for large organisations. The question that arises is how to deal with it. The answer is that only by locating the problem in a realistic context can some useful guidelines be formulated.

From such analyses it can be stated that over-centralisation, traditional methods of work, and a plethora of laws, lead to critical ineffectiveness in an organisation, and it would seem that the central services of the MNERA ought to be to engage its employees in more creative work rather than attention to trivial affairs such as the appointments of ushers and cleaners in the PEAs. The MNERA is a central department and its main purpose is to give general directions and to control the activities of educational authorities. In no way should the merely bureaucratic activities of the MNERA belong to the field of educational policy. These activities create slowness and inflexibility over particular cases and they have destructive effects on the zest and initiative of the heads and employees of PEAs. The concentration of power in Athens conceals flexibility or adaptation to changing circumstances and can lead to officious bureaucratic behaviour.

A large devolution of power is improbable in modern states but a delay in a centralised administrative system is a big obstacle to the efficiency of the PEAs. So, a rational devolution of power is the key which can reduce the problems that are created by excessive centralisation. Rational decentralisation requires a partnership between the central administration of the MNERA and the school institutions. In other words, healthy relations between schools and PEA and the State must be based on mutual confidence and trust.

2.4 The Prefectural Educational Authorities

2.4.1 Introduction

In the previous chapter it has been stated that Greece is divided administratively into 13 regions and 54 prefectures which include municipalities and communes. The head of each prefecture is the Prefect, who in accordance with recent legislation (Laws 2218/94 and 2240/94) is elected for four years by direct, universal and secret ballot, and is the formal channel of communication between the central ministries and the prefectures. Continual communication between the Ministries and the Prefectures is necessary so that uniformity of administration is ensured throughout the country. The Prefect is also responsible for law-keeping in each prefecture. The heads of the municipalities and the communes are also elected for four years. Prefectures, municipalities and communes are headed by councils which have competencies on strictly prefectural matters. They are independent local entities of public law which are only under the legal supervision of the central authorities.

The members of each Prefecture Council are elected for four years by direct, universal and secret ballot. The number of council members depends on the existing population of each Prefecture and varies between 21 and 37. The Prefecture Council is chaired by the Prefect and determines the development plans of the area, formulates its capital investment programme which includes the school buildings

programme, and makes recommendations on a variety of issues including the establishment of new public school institutions.

The organisation structure and the role of PEAs of primary education which are a sub-system of the Prefectural administration will be considered in the next sections of the present thesis.

2.4.2 Directorate of Primary Education

The existing administrative system was established in 1982 (Law No1304). Until 1982 in each Prefecture there was an Inspectorate. The Head of each Local Educational Authority was the Inspector (a qualified teacher, according to Law No309/76). By the Act of 1982 the Inspectorate was abolished and replaced by the **Directorates and Offices of Education**, which report directly to the MNERA for administrative affairs only. On the other hand, the professional guidance of teachers (i.e. in their pedagogical tasks) is carried out by school councillors. According to Law 1304/82, at the capital of each prefecture a Directorate of Primary Education has been established in order to control the functioning of the local public and private primary schools and the performance of their personnel. In prefectures with large pupil populations there are also Education Offices that have responsibility to control a certain number of primary schools. The Education Offices are situated either in the capital or in other cities or towns of the Prefecture. In January in 1996 there existed 54 Directorates and 132 Education Offices for the whole country. The Directorate of Primary Education is a sub-system of the

Prefecture Authority and following Act No 1566/85 the Directorate of Primary Education is composed of two departments:

- for administrative affairs;
- for general educational topics.

It has a total number of twelve employees. Analytically the composition of staff in each Directorate is the following:

- two graduates of university level institution;
- two graduates of technological education;
- five graduates from secondary education;
- one graduate from primary education;
- five teachers detached from their schools who undertake various educational and administrative tasks in the Directorate.

Supreme responsibility for the Directorate falls upon a head who is a qualified teacher of elementary education and has a minimum of twelve years educational experience (Presidential decree No 398/95). He or she is appointed by the Ministers of Education upon the recommendation of the appropriate central council, and therefore responsible to MNERA. The term of **Office** for the head is four years. The head of the Directorate has the following duties (Presidential decree No 348/83):

- to be responsible for the administrative, functioning and disciplinary affairs of the teaching staff of both private and public educational institutions located in their region;
- to monitor and supervise of the functioning of the Education Office;
- to give guidance about administrative and functioning matters to the headteachers in an attempt to avoid possible misunderstanding of problems;
- to have under his or her supervision all the private educational institutions and to be responsible for their legal statues;
- to be responsible for the conditions of hygiene in all the schools of the region;
- to be responsible for the establishment of co-operation with the teachers union, the parents council and similar bodies;
- to recommend the establishment, promotion, transformation and abolishment of schools;
- to supervise the pupils camp(which occur under MNERA control during the summer holidays);
- to submit a report to the relevant Prefect which includes the needs of the schools and possible solutions;
- to supervise and monitor the organisation of each school and to be responsible for the pupils' behaviour;
- to co-operate with the school advisors over the functioning and the improvement of schools;
- to have frequent meetings with the headteachers, representatives from the parents' councils and the heads of the education offices

over matters concerning the allocation of pupils in schools, the buildings and the correct allocation of the teachers;

- to hire 'temporary' teachers;
- to be responsible for teachers' temporary allocations in schools (after proposals from the Regional Committee).

2.4.3 Education Offices

The **Education Office** is a sub-system of the Division of Primary Education with its own educational area. The responsibility of the office is that of the head who is a qualified teacher of primary education. Every Education Office has its own secretarial department with a head and with an administrative official. The **Office** has a total staff of ten employees. The majority of employees are graduates of secondary education. The head of the Education Office is appointed by the Minister of Education upon the recommendation of the appropriate central council (KYSPE). The term of the head is four years and has the overall control of the administration and functioning of the schools located in his or her region; is responsible for the administrative and disciplinary affairs of his or her employees; informs the head of the Division about school matters; and at the end of each academic year submits a report to the head of the Division. The head of each Education Office has the same duties as the head of the Division except for the following:

- the control of functioning of the private schools;
- the establishment, transformation, change and abolishment of schools;
- the meetings with the local authorities;
- the hiring of temporary teachers.

2.4.4 Council for affairs of primary education

Within each prefecture there is a council composed of five members, known as PYSPE. This council has to deal with the personnel affairs of primary education. The members of this council are (Presidential decree No 399/95) :

- the head of the Primary Education Directorate who can be represented by his legal representative;
- the head of the Education Office who can also be represented by another head from the Education Offices;
- a teacher who can be replaced by another representative teacher;
- two regular elected representatives from primary education who can also be replaced.

The chairman of the council is the head of the Primary Education Directorate. The PYSPE has the following duties:

- the establishment of the lists which contain the names of the headteachers;

- the selection of the deputy heads of the school units;
- the suggestions for the appointments of the elected headteachers and their deputies in school units;
- the transformation of school units within its own prefecture;
- the introduction of the selection of the deputy headteachers;
- the entrusting of duties to headteachers of primary and nursery schools in accordance with the law;
- the provision of the licence for the establishment of private primary schools;
- the recommendation of the appointments of temporary teaching staff;
- the proposed suggestions for temporary appointments of the new selected teachers;
- the suggestions for the placements of teachers who have been transferred from another PYSPE as well as responsibility for redundant teachers in schools. It also suggests transfers for teachers who are interested in promotion;
- the judgement of disciplinary cases of the teaching staff in primary education except the disciplinary cases of the regular and substitutional members of the district and central councils;
- the recommendation of school improvements for the prefecture;
- the recommendation of the removal of teaching staff in the same prefecture;
- the proposed suggestions of teachers' appointments who come back from primary schools abroad (where there are Greek schools);

- the judgement of teaching staff appeals against the disciplinary decisions of the heads of the Directorates and the Education Offices;
- the recommendation of the teaching staff deployment to the regional educational centres;
- the assignment of duties to headteachers, deputies and the heads of the educational departments;
- the examination of the teachers' official affairs in primary education as provided for in the Education Acts, as well as all educational affairs that are provided for in special Acts, which are not the responsibility of KYSPE.

2.4.5 Prefectural Education Committee

According to Law 1566/85, article 49, the Prefectural (or sub-prefectural) Education Committee operates in the capital of each prefecture (or sub-prefecture) and is chaired by the Prefect. It is composed of the heads of elementary and secondary education, two school councillors from primary and secondary education, representatives of productive bodies (e.g. farmers' associations), the parents' federation, the teachers' unions and cultural organisations. Its members are 16.

It is clear from the composition of the prefectural education committee described above that the Prefect, the school councillor and the head of the Educational Directorate are important members. However, it must be noted that the participation of the 'productive'

bodies is very slight in practice and needs to be greater. The members with most responsibility do not seem likely to have direct knowledge of local problems. This fact confirms lack of information which concerns local economic development and the creation of relevant new positions. The Prefectural Education Committee has a consultative and advisory character for topics such as the organisation of libraries, abolishing and merging schools and so on which it reports on and recommends to the Prefectural Council and to the Prefect.

To conclude this section one can observe the following: **firstly**, in all the above mentioned cases, collective bodies and officers, the power lies with a decision-making body comprised of representatives of each group. On the other hand the heads of each level have limited powers compared to those of some other bureaucratic organisation. The Act of 1985 is a comprehensive document which lays down the principles and rules according to which PEAs are to govern the school institutions of their area. Although this Act contains many detailed regulations, there are still problems to be solved: the teachers of primary education occupy administrative posts in the hierarchical pyramid of the Greek educational system. Recent studies (Saitis, 1996) suggest that they have not been trained for modern management. There is no doubt that the educational authorities in Greece require maximum efforts from all members of collective bodies and officers. The various leading personalities and decision-making bodies rely on the availability of properly trained and fully qualified full-time administrators able to handle the many complex problems of

educational management and today, because of the difficult economic situation of the country the most significant problem is why, where and how the last drachma shall be spent. **Secondly**, the nature of the composition of the administrative staff of PEAs may be sufficient for the day to day executive process, however it does not induce one to believe that employees and heads of PEAs can contribute very much to the promotion of educational development strategies at the prefectural level, mainly because employees lack qualifications and ability to make suggestions about important educational matters (e.g. for changing the content of the curriculum) or to solve administrative problems. The last point explains why there is an excessive production of paper (around 14,000 documents each year) between MNERA and PEAs. **Thirdly**, the PEAs usually act as the middle management of the Greek educational system and not as self-administrating organisations for a specific area of the country because most school affairs demand central ministerial approval (see chapter three). **Fourthly**, the prefectural education committee lacks authority and responsibility in the sense that it makes suggestions to the Prefectural Council and does not make decisions that formulate a specific educational policy for a region.

2.5 Functional relationship between MNERA and PEAs

2.5.1 Introduction

In the previous section it has been stated that the Greek prefectures are officially self governing organisations. In practice, however the control of MNERA over their educational activities, compromises their autonomy of government and administration. It is also evident that many trivial administrative activities absorb too much time from the staff work of MNERA officers.

The prior concern of this section is the analysis of administrative activities between the central services of MNERA and the PEAs. These activities belong to the following categories:

- organisation (e.g. foundations of school institutions);
- personnel (e.g. appointments of teaching staff);
- financial (e.g. payments of teaching staff);
- pupil's affairs (e.g. text books)

Discussions with appropriate employees of the above Ministry and the PEAs (see footnote 4) suggests that the procedures in respect of the issues cited need improvement because only in this way will the Greek PEAs and schools escape from 'bureaucratic disease' and become more effective. The schools of elementary and secondary levels of education are public organisations and cost large amounts of money, so their efficiency as well as that of the PEAs are at a

premium. Although in public services it is almost impossible to define and to measure efficiency, nevertheless a school institution is efficient when it facilitates accomplishment of such objectives as more and better provision of knowledge to pupils with a minimum of undesirable financial consequences.

Broadly speaking Greek public administration needs better management because it is inefficient, inflexible and excessively centralised. Indeed, the role of the Greek civil service has been passive rather than active (Spanou, 1996 and Macrydimitris, 1990). The nature of modern society has changed in several respects but civil service attitudes and expressions have not changed accordingly. A modern society needs a contemporary administrative system, to correspond to current public needs. Management, in the civil service, therefore, should act as an instrument to (Garett,1980) :

- formulate policy under political direction;
- establish how to achieve aims;
- make the arrangements necessary for achievement;
- get the parts working together;
- see how well the operation is doing and identify modifications needed.

The following section is designed:

- to provide some examples and analysis of the relationship between the MNERA and PEAs;
- to establish why effective management is needed for the central and the prefectural levels of educational services.

2.5.2 Examination of how the work is organised

In order to investigate the efficiency of educational services in Greece, the technique of 'Organisation and methods' better known as 'O and M' is illustrated in the present thesis. According to Oliver (1975,p.8) the term O and M is defined as 'management service, the object of which is to increase the administrative efficiency of an organisation by improving procedures, methods and systems communications and controls and organisation structure'. Anderson (1980,p.1) defined the term as 'a specialist function which attempts to improve the efficiency and effectiveness of clerical procedures and the control of operations within a business'. The main aim of O and M is by objective investigations to devise the most effective means of shaping and improving the organisation and conduct of business viz. increasing of productivity (Shaw,1984).

Using the management technique O and M, the primary purpose of the present study is to consider the administration of the Greek educational system in order to see whether this system is effective or in need of reform. The technique does not include some particular aspects of efficiency such as problems relating to staff selection or the training of middle and junior managers in human relationships. The

emphasis is upon analysing existing procedures and developing more efficient ones.

Following the technique O and M, the first task to be done is to embark on a critical examination of the system. Satisfactory answers are required to each of the questions included in Table 2.4.

TABLE 2.4

The O and M technique - what should be asked during the critical examination of the Greek educational system.

Question	Answer
1) What is done?	Action
2) Where is it done?	Place
3) Why is it done?	Purpose
4) When is it done?	Sequence
5) Who is it done by?	Person
6) How is it done? Or how else could be done?	Mean, significance

A satisfactory answer to question six leads to consideration of alternatives which might also be acceptable and finally to a decision as to which if any of the alternatives should apply. The analysis of the questions needs complete data and information related to the procedure of administrative work in the MNERA and other agencies. These were obtained: **first**, by studying the Laws, Presidential decrees, Ministerial decisions, documents and reports relative to the organisation and functions of the two administrative levels; **second**, by discussions with teaching and administrative staff of the PEAs and the

staff of the MNERA⁴ . The discussions consisted of questions about the existing procedures of administrative activities, descriptions of these activities and calculations of the time needed and the number of employees at each managerial level (see appendix Two); finally, by analysing statistical information provided by the National Statistical Service of Greece and the MNERA. Having all the necessary data and information we move to an examination of how work is organised and carried out in the MNERA and PEAs. More particularly, activities which are carried out in the sector of organisation will be examined.

The prior concern of this section is a critical examination of some of the administrative aspects which compose the relationship between the MNERA and PEAs. Specifically the examples which follow are designed to show the existing managerial situation in the field of educational administration in the MNERA and PEAs.

Example One. The establishment of a public primary school.

According to Law No1966/91 the establishment of primary and secondary schools requires a decision of the Minister of Education which is published by the National Printing House. According to this Law the PEAs submit their proposals to the MNERA and then the staff of the relevant service follow a series of bureaucratic procedures. In

⁴ Interviewing Heads of the Education Offices and Directorates of Primary Education was the method chosen for the selection of data for the calculation of the bureaucratic activities, time spend and use of the work force. The interview schedule can be found in Appendix Two of the thesis. It must be noted that the Greek administrative system is centralised and all Directorates of Primary Education follow the same administrative procedures for the establishment of a new public primary school.

particular the establishment of a primary school has to pass through the following bureaucratic stages:

Stage A: Activities within the PEAs.

- the head of the Education Office or of the Education Division estimates the educational need (by means of statistical numbers) of its region;
- in September or October the appropriate clerk draws up a document for the establishment of the primary school;
- typing of the document, director's signature;
- register/sending the document to the appropriate Local Committee of Education.

It is apparent that four bureaucratic activities involving seven persons and a time span of about five days are involved. The calculation of spend time and the use of the work force is a result of personal discussion with the appropriate administrative staff of the MNERA and PEAs (see footnote 4). The figures are given approximately and under 'normal' conditions. In practice, however, the period is further prolonged because the procedure involves collective bodies which do not meet frequently.

Example One: Critical analysis of Stage A

Questions	Answers
What is done ?	A new public primary school is proposed.
Why is it done?	Because it is going to cover the educational needs of the area.
What else could be done?	Nothing because the elementary education is provided only through primary schools.
Who suggests it?	The head of the Division or the Education Office.
When is it done?	The proposal is usually made in September or in October because the procedures take a long time.
Where is it done?	First, at the PEAs level as indicated above.
Why did it start from there?	PEA is an autonomous public body and can specify problems, and search for the implementation of solutions in the area of education.

Stage B. Activities within local government.

- register / President of Local Education Committee / secretary of committee;
- meeting of the Local Education Committee for decision-making about the establishment of the primary school;
- typing of minutes / ratification of minutes;
- drawing up a document to the appropriate PEA / signature of the President of local government;
- typing / checking / sending the document to the appropriate PEA.

Thus, five bureaucratic activities involving approximately twenty people and a demand time of about fifteen days are involved in this stage.

Example One: Critical analysis of Stage B

Questions	Answers
What is done?	Decision about the establishment of a new primary school.
Where is it done?	At the Municipal or communal Education Committee.
Why is it done?	Because this procedure is imposed by Law.
When is it done?	In November or December.
How is it done?	The above committee decides about the establishment of the primary school.
How else should it be done?	All the above described activities can be considered as necessary because the foundation of a new school affects the life of the community. It can be argued that, the commune or municipality that covers the functional costs of a school knows and has a better understanding of the needs of their local area than the top management, the officers of the MNERA and the Ministry of Finance. Furthermore, the participation of the local government for the better maintenance and progress of its area would be a good sign of democratic process.

Stage C. Activities within the PEAs.

- register / head of Directorate/ the appropriate clerk;
- drawing up the document for Prefectural Education Committee;
- typing the document/head's signature;
- register/sending it to the Prefectural Education Committee.

At this managerial level, four bureaucratic activities are involved. These activities involve approximately eight employees and demand time of about four days.

Example One: critical analysis of Stage C

Questions	Answers
What does the PEA do?	It 'transfers' the decision of the municipal or communal Education Committee to the Prefectural Educational Committee.
Why does it do it?	Because it is imposed by Law.
Is the PEAs work necessary?	It is necessary because the role of the PEA is to co-ordinate the task of the Education Committees and to communicate with the upper level of educational management.

Stage D. Activities within the Prefectural Government.

- register of Prefectural Government / head of appropriate unit;
- meeting of the Prefectural Education Committee / decision;
- typing of minutes / checking of typing / ratification of minutes;
- clerk / drawing up a document / decision to the Prefectural Council;
- appropriate secretary / President of Prefectural Council / fixing the meeting date of the prefectural council;

- meeting / decision for the establishment;
- typing of minutes / checking of typing/ ratification of minutes;
- appropriate clerk / sending the decision of the Prefectural Council to PEA.

Eight bureaucratic processes are involved which utilise fifty employees and about thirty days in demand time.

Example One: critical analysis of Stage D

Questions	Answers
What does the prefectural committee do?	It makes suggestion to Prefectural Council.
Why does it do it?	Because by Law this committee is responsible for the educational affairs of the prefecture.
How does the committee work?	By investigating these sectors: Financial - if there is money available; Legal - if the establishment of the new primary school is legal; and Educational - if the new school covers real educational needs of the specific area.
What does the prefectural council do?	It makes the final decision (in the field of prefectural government).
Why does it do it?	Because by Law (No 2218/94 article 13) this council is responsible for the foundation of new primary schools.
How does the council work?	By discussing the decision-suggestion of the prefectural education committee.

How else should it be done?	All the activities can be considered important in the sense that the prefectural council is responsible for issues which are related to the development of the prefecture. The Greek prefectures are by Law (No 2218/94) self-governing organisations, nevertheless, the new procedure outside prefectural management is a crucial stage to be considered for making a critical examination.
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Stage E. Activities within the PEA

- register / head / appropriate clerk;
- drawing up the document for MNERA / head's signature;
- typing / register / sending it to the MNERA.

At this management level, three bureaucratic activities are involved which involve approximately nine employees and a demand time of about three days.

Example One: critical analysis of Stage E

Questions	Answers
What does the PEA do?	It sends the decision of the Prefectural Council to the MNERA.
Why does it do so?	Because by Law (No 1566/85) the MNERA is responsible for the establishment of primary and secondary schools.

Stage F. Activities within the MNERA.

According to Education Act 1566/85 the public schools of elementary and secondary education are supervised and financed by the State. The authority for the supervision of the State is vested in the Ministry of Education. Under this legislative order most school matters need ministerial approval. The following is a list of bureaucratic activities undertaken by employees of MNERA:

- register of MNERA / clerk;
- director of appropriate sub-division / chief of section/clerk;
- clerk/study of papers / suggestion to Minister;
- hierarchy of MNERA / Minister's approval;
- clerk / drawing up a ministerial decision/typing;
- hierarchy / minister's signature;
- clerk / register of MNERA / sending the approval to the Ministry of Finance (M.F).

Seven bureaucratic processes are included in these activities.

People demand: five employees and time demand is twenty two days⁵.

⁵ Interviewing the Head of the Department A of Direction for the Administrative affairs of Primary and Secondary Education of MNERA was the method chosen for the selection of data for the calculation of the bureaucratic activities, time spend and use of the work force. The interview schedule can be found in Appendix Three of the thesis.

Example One: critical analysis of Stage F

Questions	Answers
What is done?	A public primary school is approved to be created.
Where is it done?	In the ministry of education.
Why is it done there?	Because it is imposed by the Act of 1985.
Is this task necessary?	In the opinion of the researcher it is not necessary because this administrative work of the MNERA in no case implies supervision and educational policy. On the contrary it is simply an 'extension' of the bureaucratic procedure for the establishment of new school institutions. Historically, the institution of a ministerial approval was introduced in the 19th century (Law of 1834, article 5) and was probably suitable for the then prevailing form of government. However, at the present time where the functions of State are multiplied and the prefectures are complex organisations, this traditional Act of educational administration is unnecessary. A PEAs functions and goals demand flexible and effective management.
Where else should it be done?	As self-governing organisations, the prefectures should be the only appropriate agent for the creation of primary and secondary education schools. The prefectural government should not only decide about the foundation of schools but carry them out. It may be argued that ministerial approval is needed to offset the

	<p>'overstepping of one's power' within the prefectures but there are no specific examples to confirm whether this might have happened. A well-defined devolution of authority and responsibility to the PEAs and an effective control mechanism could be a sure safeguard against the bureaucratic process. MNERA has of course the right to oversee the proper use of all funds.</p>
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Stage G. Activities within the Ministry of Finance.

- register of M.F. / appropriate sub-division / Section / clerk;
- clerk / investigation into the expenses;
- hierarchy / Minister's signature;
- clerk / register / sending it to MNERA.

For these activities ten employees and ten days are needed.

Example One: critical analysis of Stage G

Questions	Answers
What is done?	Minister's signature for the needed finance.
Why is it done?	Because it is imposed by education act of 1985.
Is this work necessary?	It is not necessary because the MNERA and Prefectures have their own budgets and act in accordance with their financial programmes. It is not clear whether or not this ministerial activity

	<p>simply arises from a lack of managerial thought or serves 'specific' purposes. The fact however, is that the existing procedure through a plethora of subdivisions and departments of public administration creates delay in educational affairs, occupies many employees in day to day routine duties and put obstacles against the socio-economic development of the country.</p>
Where else should it be done?	The appropriate agent for the task is the prefectural management.

Stage H. Activities within the MNERA.

- clerk of appropriate section;
- head's signature;
- register of MNERA / an usher takes it to the National Printing House (NPH).

Stage I. Activities within the NPH.

- register / appropriate sub-division / clerk;
- publication of the Ministerial decision of the MNERA and M.F in the Official Government Gazette.

Stage J. Activities within the MNERA.

After the publishing of the Ministerial decision the clerk of the appropriate section of the MNERA gives notices of this it to the Prefectural Educational Authority. From what has been written it is

evident that the procedures for the foundation of a new public primary school require a total time of eight months and involves forty two bureaucratic activities and forty people. According to our use of the technique 'O and M' we find the following:

The existing procedure for the establishment of a new public primary school demands five approvals of all administrative levels of public administration: Local (Local Education Committee), Prefectural (Head of Education Office, Prefectural Committee) and Central (Minister of Education, Minister of Finance). Given that this kind of administrative operation is also found in the other educational affairs (see the next examples in the thesis) one can conclude that the Greek administrative system is centralised. Furthermore, it is inefficient and inflexible in the sense that it is based on complicated bureaucratic procedures. In practical terms, it means loss of valuable use of time and cost, concentration on routine activities, time spent in doing and not in managing, thus, it is a matter of organisational inefficiency. It is important to note that the responsibility for 'marathon' bureaucratic activities of the Greek administrative system lies with Parliament since the existing complicated procedures are imposed by law.

The Greek PEA does not enjoy legislative self-administration because final decisions for their affairs, on significant matters, such as the establishment of schools and routine matters such as the appointing of school cleaners, are made outside its management control.

The relations between MNERA and PEAs can be characterised as those of centralised bureaucracy since routine matters and trivial administrative activities demand ministerial approval. Given that PEAs know and have a better understanding of the needs of their areas than the top management (MNERA), successful delegation benefits both the MNERA and the PEA and enables them to play their respective roles in improving organisational effectiveness.

Example Two. The creation and function of a private primary school.

According to Education Act No 682/77 'on private elementary and secondary education' the establishment of a private school requires a decision of the Minister of Education. The procedure for the establishment of such a school starts with the application of a person to the Directorate of Primary Education, according to the following steps:

Stage A. Activities within the Directorate of Education.

- register / head of Directorate / appropriate clerk;
- drawing up a document that includes the suggestion of the appropriate Council (PYSPE);
- typing of document / hierarchy / head's signature;
- register / sending it with all documents to PYSPE;

These activities involves ten persons and need five days⁶.

Example Two: critical analysis of Stage A

Questions	Answers
What is done?	The establishment of a private primary school.
Why is it done?	Because it is going to cover educational needs in a specific area.
Where is it done?	First, at the education office because that is imposed by the Law.
How else should it be done?	All the above described activities are necessary because the foundation of a private school is the responsibility of the Directorate of Education.

Stage B. Activities within the PYSPE.

- register / chairman of Council / secretary of Council;
- notification of agenda to all members of Council;
- meeting / discussion / decision about the creation of the school;
- writing / typing of the minutes / ratification of minutes by chairman;
- notification of decision to the Directorate of Education.

Twenty people and fifteen days are needed.

⁶ Interviewing Heads of the Education Offices and Directorates of Primary Education was the method chosen for the selection of data for the calculation of bureaucratic activities, the spend time and the use of the work force. The interview schedule can be found in Appendix Two of the thesis.

Example Two: critical analysis of Stage B

Questions	Answers
What is done?	The establishment of a new private primary school.
When is it done?	During the period October-April.
Why is it done?	Because of educational needs.
Which criteria does the PYSPE use to decide on the establishment of the school?	There are specific criteria which are determined by the Act No 682, article 6.
Is this process necessary?	It is necessary because the PYSPE is the appropriate council to decide issues concerning elementary education in the prefecture.
How else should it be done?	There are no suitable alternatives. The five managerial activities can be considered necessary in the sense that the PYSPE investigates systematically to decide to approve the creation or not of the primary school.

Stage C. Activities within the Directorate of Primary Education.

- register / head / chief of department;
- clerk / drawing up a document for the MNERA;
- hierarchy / head's signature / typing;
- sending it (with all documents) to appropriate direction of MNERA.

Nine people and three days are needed.

Example Two: Critical analysis of Stage C

Questions	Answers
What is to be done?	A new private primary school.
Why is it to be done?	Because it is going to cover educational needs in a specific area.
How is it done?	By sending PYSPE's decision to MNERA for ministerial approval.
How else should it be done?	By a decision at by the chairman of PYSPE. In this way the procedure would be shorter and the appropriate prefectural educational authority would be responsible for its own activities.

Stage D. Activities within the MNERA.

- register of MNERA / sub-division for Private Education;
- chief of section / clerk and investigation of all the papers;
- drawing up a ministerial decision / typing;
- hierarchy / Minister's signature;
- register / sending it to appropriate Directorate of Primary Education.

These activities demand fifteen people and fifteen days⁷.

⁷ Interviewing the Head of the Department A of Direction for Private Education of MNERA was the method chosen for the selection of data for the calculation of the bureaucratic activities, the spend time and the use of the work force (referring to Example 2). The interview schedule can be found in the Appendix Four of the thesis.

Example Two: Critical analysis of Stage D

Questions	Answers
What is done?	A ministerial decision for the creation of a new primary school.
Why is it done?	Because it is imposed by educational Act No 682/1977.
What is the meaning of the minister's signature?	In the 19th century when the monarch exercised all authority in the small Greek Kingdom a ministerial approval may have been a basic requirement. Today however, the political, social, economic and geographical situation is totally different. Rational delegation of responsibilities is a matter of sound economics as well as good organisation, thus, this task maybe considered as ineffective management of time.
What else should be done?	Two arrangements would simplify the existing procedure of the Greek administrative system. First, the parliament should pass a Law with a successful devolution of power from central government to prefectural educational authorities and second since 'ultimate responsibility cannot be delegated' (Mullins 1996, p.571), MNERA have to accept 'responsibility' for the control of PEAs' activities.

Stage E. Activities within the Directorate of Primary Education.

- register / head of the PEA;
- clerk / notification of ministerial decision to the person who made the application for the establishment of a private primary school.

After that the owner of the private school submits a new application to the Directorate of primary education in order to acquire a licence for the function of the school. Specifically this requires the following stages:

Stage F. Activities within the Directorate of Education.

- application form with a number e.g. of documents / register of directorate / head;
- clerk / creation of committee with three members: a) the head of the Directorate; b) a doctor and c) a mechanic;
- the committee investigates the situation of the school (e.g. class rooms etc.);
- committee's reports submitted to PYSPE;
- PYSPE decides about the functioning of the private school;
- clerk of Directorate / drawing up a document on the functioning of the private school;
- typing / head's signature;
- register / sending it to the owner of the school.

Twenty two people and fifteen days are needed.

Example Two: critical analysis of Stage F

Questions	Answers
What is done?	Provision of licence for the functioning of a private school.
Why is it done?	Because it is imposed by educational Act No 682/77.
How is it done?	By sending a committee to investigate the operational conditions of the school.
Is this work necessary?	In the opinion of the present writer it is necessary because by Law 1566/85 the responsible agent for the function of primary schools in a prefecture is the head of the Directorate of Primary Education.
How else should it be done?	There are no suitable alternatives. The eight managerial activities can be considered necessary since the members of the committee and PYSPE can systematically investigate all conditions of the functioning of the primary school.

From what has been said it is clear that the procedure for the establishment and function of a private school is carried out in six stages. From stage A until the last stage F twenty eight bureaucratic activities intervene which involve approximately seventy eight people and need at least sixty days. Using the technique 'O and M' we find the following:

Educational issues like the creation and functioning of primary schools are carried out in the MNERA and after a plethora of bureaucratic activities. This implies that the Greek PEAs do not function as self-administrated organisations.

In the Greek administrative system the majority of bureaucratic activities are of a routine nature and unnecessary. This implies that more time shared up spent in doing and less in managing. It is easy for someone to conclude in general that the State fails to delegate sufficient authority so as to enable the prefectural authorities to fulfil their responsibilities.

The procedure for establishing new primary schools is cumbersome, extensive and very costly as it includes many overtly bureaucratic administrative activities. There is consequently the loss of an opportunity for economic development. High administrative costs mean less investments in vital public sectors such as education, industry and agriculture.

To conclude, the administrative system relating to Greek educational authorities, at central and prefectural level may be improved as follows: **first** of all, the Educational Acts related to the organisation and functioning of primary schools should be replaced by **introducing** shorter approval procedures and new methods of administrative work and by **rational devolving of** power from the central government to the PEAs embracing both authority and responsibility. Devolution of power is not an easy process : 'it involves organisational and economic considerations and it is subject to a

number of possible abuses' (Mullins 1996, p.572). However, properly handled, delegation offers many potential benefits to both the MNERA and PEA. Careful devolution of power leaves the MNERA free to concentrate on the more important tasks and lead to a greater flow of work and a reduction of bottlenecks (Bouradas, 1992 and Papakonstantinou, 1990). Therefore, successful form of delegation should be the key for the creation of an effective administrative system. In practical terms this means that a PEA must act within a defined sphere of authority and central government's control over the PEAs must be confined to the most important affairs such as curriculum, textbooks, planning for the annual number of appointments of teaching staff and financial subsidies. With a defined PEA authority, new administrative methods of work can be more effective and PEA would be more responsible for its activities. An accountable manager is one to whom specific authority over part of an organisation's resources has been delegated and who is required to answer for the results he has obtained from the deployment of those resources. For a PEA the term 'responsibility' can be taken to mean that it is responsive to MNERA and public opinion and so acts in accordance with its charter. The central control can be regarded as that of investigation if the PEAs have misused their power.

Secondly, managerial changes should be made in the internal environment of MNERA such as decreasing the number of general Divisions in order to have a rational distribution of tasks. There should

be creation of a unit responsible for the codification of educational legislation.

Finally, the creation of specific councils (one for each educational level) responsible for the designing and implementation of educational policy could be helpful to the political leadership of MNERA, because Ministers in Greece change very often. In order for all these changes to take place in the Greek administrative system, a general agreement of all the political parties on improvement in the quality of the political system of government and administration are required.

2.6 Summary

The purpose of this chapter is to provide the reader with a general overview of the external management of primary education in Greece. Management is a generic term, a discursive subject and a universal consideration. The study of management is very important and has to proceed on a broad front. Management is taking place in every organisation (public or private) and even at national level. Management is both an art and a science. Although there are some differences between management in the private and public sector, both are concerned with effective performance, the setting of objectives, the design of policy and suitable structures. Basic principles and tools of management are common features in both private and public organisations, including government departments. However, there are

many forms of organisation. Organisations can be large, small and evince a number of differences. Despite these there are at least three common factors in any organisation: people, objectives and structure. The organisation of a school is public and formal, mainly concerned with the co-ordination of activities, and consisting of people. The process of management in schools is divided into specific tasks: technical, conceptual, human knowledge and external. Therefore educational management can adopt the definition of general management given above (section 2.1.1., p.64) by adding the phrase 'explicitly existing to provide education'.

It is generally accepted that the prosperity and the future of a society depend on an effective administrative system. By examining the Greek external management in primary schools through the analysis of the day-to-day administrative work of MNERA, one can conclude that the Greek public sector has several problems of management such as over-centralisation of administrative power, the erosion of technical decision-making capacity by a spoils system and by the impact of political vicissitudes which result in frequent changes of high level personnel, including the Minister. The Ministry of Education lacks the necessary steering capacity to handle a complex system. MNERA is an overstuffed, complicated and expensive bureaucratic organisation. Reform proposals (for recruitments, payments, promotions and conditions of employment etc.) are not durably implemented and as a result people cannot adjust 'rightly' to a frequently changing environment. The implementation of reforms

produce side-effects that usually have not been foreseen, at least not by politicians. Dysfunctional side effects occur at different levels. Political appointments of teachers means lack of continuity for children and even inconsistent requirements as to what they are to learn. Syllabuses are changed with political changes as are examinations and even the books to be studied. The society of the school is changed by politically-motivated appointments to headships which can sometimes lead to disaffection among teachers. Economically, side effects include unexpected costs and payments which prevent the smooth running of schools. Decision-making processes lack real accountability to the national community and there is an absence of broad participation. Lack of genuine accountability arises from uncertainty about where to situate power because decision-making authority is not clearly divided between national, regional and local bodies. Policies fail because they require the agreement and co-operation of too great a number of public sector organisations and it is hard to focus on the specific office or person who is deciding any given issue. The growth of bureaucracy is a continuous problem in the Greek public sector and is associated with the demand for effective administration. Careful design and planning of organisational structures, greater flexibility, delegation of power and political agreement on the basic issues of implementation are features that are required from the Greek public sector provision in order to attain administrative effectiveness, efficiency and increased productivity.

CHAPTER THREE

INTERNAL MANAGEMENT OF GREEK PRIMARY SCHOOLS

3.1 Structure and Operation of Primary Education

The general aim of primary education is the pupil's all-round mental and physical development. In particular, the primary school (dimotiko scholio) helps the pupils (Law 1566/85, article 1):

- broaden and adjust the relationship between their creativity and the programmes, situations and phenomena they are studying;
- built up the mechanisms which contribute to the assimilation of knowledge, develop physically, and improve their physical and mental well-being as well as developing their motor skills;
- grasp fundamental concepts and gradually acquire the ability to proceed from an understanding of the evidence presented to the senses to the field of abstract thought;
- familiarise children with moral, religious, national, humanitarian and other values and introduce them into a system of values;
- cultivate aesthetic judgement so that children can appreciate works of art and express themselves in their own way through artistic creations.

In every community in Greece a number of primary schools function to fulfil the needs of pupils. All schools at the elementary level of the educational system may be either State schools or private ones. The choice of State or private school is the parents' decision. If a State school is chosen, the child must attend the school nearest to his or her place of permanent residence. There are State primary schools throughout the country, even in remote and inaccessible areas. According to the number of permanent teaching posts allocated, primary schools are divided into one-teacher, two-teacher and up to six or twelve-teacher schools. Pupils are assigned to classes by chronological age. Most subjects in the primary school curriculum are taught by a class teacher who may change group or class every year. A foreign language, physical education and the arts (that is music and painting) are subjects taught by specialist teachers. Primary schools operate five days a week, with five to six hours of teaching each day according to the age of the pupils. Weekly teaching hours vary between twenty-five and thirty, again according to the age of the class and whether or not the teaching includes a foreign language and music (Presidential decree 583 / 1982).

The subjects taught in the first and second classes are: modern Greek language, mathematics, environmental studies, physical education, art education and school life. In the third and fourth classes, the curriculum includes: modern Greek language, mathematics, environmental studies, religion, history, physical education, art education and in the fourth class, three hours' foreign

language teaching each week and one hour's teaching of school life and culture together with music. In the fifth and sixth classes, the curriculum includes: modern Greek language, mathematics, geography, the natural world, religion, history, social and political education, physical education, art education, music, a foreign language and school life.

The detailed curricula and timetables are drawn up by the Pedagogical Institute which is also responsible for school textbooks. There is no choice of textbooks.

In addition to the ordinary curriculum, there are remedial teaching programmes for less able pupils, mainly in language and mathematics.

3.2 Teaching staff

Most nursery and primary school teachers already in post have been trained in the Colleges of Nursery and Primary Education respectively, where studies are undertaken for two years. In accordance with Law 1268 of 1982, University Departments of Nursery and Primary Education have been created, where studies are pursued for four years. The first such University Departments began to operate from the 1984-85 academic year, with the first Nursery and Primary teachers graduating in 1988. Graduate students who wish to be appointed to posts in Primary Education can fill in an application form assigned by the Ministry of Education and Religious Affairs

accompanied by all the legal documents needed in accordance with Law No1566/85.

Candidates apply for posts in the Directorate of Primary Education of the area in which they live. After the application forms and documents have been checked at the Directorate of Primary Education for ten days, they are submitted to the appropriate subdivision of the MNERA accompanied by all the necessary information. Every January the appropriate service of the MNERA draws up charts consisting of the names of appointed nursery and primary school teachers, where order is determined by degree grade and date of application. These charts are confirmed by the Minister of Education and Religious Affairs within ten days of the date they have been drawn up.

The number of teachers who are appointed in a given year depends on the needs of the service. Statistics suggest (MNERA, 1996) that today there are 21,000 graduates from the Teachers' Training College who have not yet been appointed.

It has been estimated that those who graduated in 1996 will receive appointments in thirty years' time. The need for teachers in primary education is decreasing over time whereas the number of University graduates interested in teaching are increasing.

When schools are staffed by means of a list of registered names, competition between teachers is avoided. The disadvantage of this system is that the best teachers do not necessarily obtain appointments, the latter being taken by people who appear first on the

list. Usually these people have graduated from University some years before and are in danger of having become deskilled over time.

On the other hand, the large number of graduates who apply for a post in the public sector and have to wait a long period of time before receiving an appointment because of the large number of applicants weakens the pedagogical and social function of the educational system. Teachers who have been on the list for several years tend to be less enthusiastic about committing themselves to education. When teachers are eventually appointed for employment in the public sector, they are called to teach new material and use new teaching methods with which they are often not necessarily familiar. Therefore teachers need to keep in touch with recent educational developments by attending additional seminars or courses after graduation from University. Moreover, it is well to emphasise that the present process of appointing teachers needs reconsideration. The principal reason for this is that most of the teachers selected to be educators have been chosen by the examination system; teaching was often not their first choice.

The adoption of open competition may encourage candidates for teaching posts to value the profession more highly if they considered their selection would be by meritocratic means.

From the above analysis it is maintained that school staffing is a centralised process and that central administrative executives are mainly responsible for it. Regional executives have responsibility for post improvements and for the placement of those appointed to their

allocated post. It is advisable that appointments should be made on a regional basis in order that they may be better organised.

The in-service training of teachers, takes place only on a voluntary basis. Today there are many types of voluntary in-service training such as:

- a two year course provided at the Marasleio Teacher Training College, for nursery and primary school teachers under the age of 40 with at least five years' teaching experience. This course is aimed at training teachers for senior posts in the profession. It focuses on research and the scientific study of subjects relating to psychology, education, and primary education policy (curricula, textbooks and materials, and the inspection, organisation and administration of education);
- seminars of short duration (forty hours) on specific subjects of general interest, which are organised by the PEK (in regional centres for in-service training). Special short seminars are organised by the SELETE (College for In-service Training of Technical and Vocational Teachers) for in-service training in the fields of education and technological education (seminars for training teachers in the use of computers, in environmental education, or in updating knowledge of a subject).

The Ministry of Education is responsible for in-service training at national (central) level. It defines the priorities, sets the objectives,

decides on the form and content of training and drafts relevant legislation. The in-service institutions - regional centres for in-service training (PEK), the Marasleio Teacher Training College (MDDE), the College for In-service Training of Technical and Vocational Teachers (SELETE) -are responsible for the implementation of the forms of training and for training programmes which are established at national level. Taking into account that in Greece there is not either pre-service training or immediate appointment of teachers one may conclude that teachers who take up a first teaching post are often not adequately prepared for the realities of teaching nor are they familiar with scientific and educational issues proper to their profession.

3.3 The Administrative structure of Primary Schools

The school headteacher, supported by the deputy headteacher, and the Teachers' Council have roles in the administration of each school.

3.3.1 The headteacher and the role of the school adviser

Headteachers are mainly responsible for the smooth function of the school, the co-ordination of school life, the observance of laws, circulars and official orders. They are also responsible for the implementation of the Teachers' Council resolutions. Headteachers also take part in the evaluation of school teachers' work and co-operate with the school advisers (Law No 1566/85). A central role in

this educational process is one of preparation for the school advisers, who have long been committed to an effective staff support system. They help teachers to be more productive, to use available resources better and to adopt new technologies. School advisers also need to be responsive to the individual needs and demands of particular teachers. The advisers spend time in each class with the teachers and help them to improve their own teaching methods by introducing them to new teaching techniques. A great deal of time is taken up in classroom observations and in meetings with staff to counsel them in pedagogical performance (Graig, 1989). Schools need to develop a partnership between heads and school advisers in relation to the assessment of staff, since headteachers have also a role as counsellor to members of staff. The relationship between the headteachers and the school advisers has to be a professional one as they are required by law 1566/85 to work as a team in order to ensure that teachers are receiving the best possible evaluation of their performance. School advisers need to have considerable powers as far as staff assessment is concerned and need to be able to rely on their own professional status in the school to carry out their wishes in a professional way. Although, in law 1566/85 there are a number of implications for the work of school advisers in their need to offer monitoring support to headteachers (the head receives information from them) about staff evaluation, the realisation of the full potential of the partnership between heads and school advisers depends on the proper preparation of governors to enable them to discharge their

responsibilities effectively (Cave, 1990). The Law 1304/82 (which introduced the school adviser) has, however, not been fully operated because of (Saitis, 1992, Gerou, 1990, Tsardakis, 1990 and Balaskas, 1990):

- a lack of government vigour;
- a lack of 'serious' motivation;
- a poor selection of school advisers. Although the law 1304/82 requires for the selection of the school adviser the following qualifications: 'open personality', 'social contribution' and 'teaching experience', the criteria are not sufficiently specific to ensure inspired and effective selection process.

Among the duties of the headteacher, the following are the most important ones, according to circulars No 25124 and 52091/1978:

- to be responsible for the supervision and general direction of the school, of which they are the main representatives;
- to stay at school during working hours and supervise its normal functions except if they are obliged to be absent for official reasons. In the latter case they are to be substituted for by the deputy head;
- to co-operate harmoniously with all teaching staff since the work of instruction is based upon good co-operation. There can be co-operation if there is respect for teachers, justice in work

assignments and real interest in the solution of both official and personal problems;

- to confront the pupils' problems properly;
- to inform parents and guardians regularly about the pupils' studies, and behaviour and about the school records of achievement.

3.3.2 The Deputy Head

The deputy head substitutes for the headteacher when he or she is absent. If there is more than one deputy in a school the substitute is appointed by the headteacher. The deputy head helps the headteacher in the performance of his or her duties and he or she is responsible for the administrative work in the school. From the managerial point of view the post of deputy head is very important because the teachers who hold this post:

- help headteachers to carry out their difficult task;
- have a 'rich' and varied set of opportunities to learn the job of being a headteacher. 'Deputies and heads should be always in constant communication and deputies should always be willing to take over headship responsibilities' (Mason, 1989, p.41). Southworth (1990) suggests that in schools where the deputy head participated in decision-making, higher effectiveness in teacher communication and fewer critical complaints were recorded than in schools where the deputy head was less directly involved.

In Greece, however, the institution of deputy head seems to be, to some extent, an isolated position, in the sense that:

- the holders of deputy headship posts are in charge only during the head's absence. Some Greek heads seem not to show confidence and trust in their deputies. The role of the deputy is sometimes seen as a 'threat' to the authority of the headteacher, thus, heads are not always keen to allow deputies to have sufficient training and develop skills (Theodorou, 1981). The net result of this situation is an unsatisfactory and ill-defined role for the primary deputy headteacher. Although the position of the headteacher should be inherited by someone who has already developed managerial skills and is willing and able to substitute for this position there seems to be little attempt on the part of some headteachers to ensure the deputy is fully equipped and capable to carry out a properly defined role (Waters, 1989);
- the total number of large primary schools has declined (55% of the total number of primary schools are small, with between ten to forty pupils).

3.3.3 Teachers' Council

The Teachers' Council of each school consists of all the teachers, and the headteacher is their president. The Teachers' Council meets after it has been invited by the president at the beginning of the school year and at the end of each term. It also

meets whenever the President (headteacher) feels it to be necessary. The meetings take place within working hours but not during teaching hours.

The Teachers' Council deals with improving the implementations of educational policy and with the better functioning of the school. It is responsible for the fulfilment of the school schedule and its detailed programme, the pupils' health and protection, and the organisation of school life. It estimates school needs and deals with their resolution. It develops possibilities of co-operation between members of the teaching staff and members of the public who are given information about the school.

From the above description it is evident that the Education Act of 1985 describes the duties of the administrative structures of schools in only a general way, leaving the special duties of the Teachers' Council imprecise. These duties were left to be defined by a ministerial decision that would oblige headteachers to apply decisions of the Teachers' Council. Although twelve years have passed since the Education Act, the ministerial decision has still not been made. Thus, today the organisational structure of the school is characterised by legislative imprecision as far as its functions are concerned. The effect of this imprecision is that it sometimes causes opposition and conflict among the teaching staff, militating against the school fulfilling its objectives. Recent studies (Saitis, Darra and Psarri, 1996) suggest that 58% of conflicts which take place in primary schools are the result of legislative imprecision.

3.3.4 Other partners in school government¹

In primary schools, the following bodies function:

- **the School Council.** This consists of the Teachers' Association, the Administrative Board of the Parents' Association, a representative of local government (and in the case of School Councils in Secondary Schools, a representative of the Pupils' Communities). The task of the School Council is to ensure the smooth running of the school in every appropriate way, to establish means of communication between teachers and pupils' families, and to ensure that pupils and the school environment are healthy;
- **the School Committee** consists of a representative of the Municipality or the Commune, a representative of the parents' association, a representative of the pupils of the school, the head teacher of the school (and in secondary schools a representative of the pupils' Community). The task of the School Committee is to manage finances for the operational functioning of the school and to deal with any problem regarding the operation of the school;
- **the Parents' Association** of each school, participates in the School Council and through its representatives, in the other participatory and advisory bodies;

¹ Secondary schools are occasionally referred to, as both primary and secondary schools are covered by the same legal ordinances in many aspects.

- **the Municipal or Communal Education Committee** which operates in each Municipality or Commune. It consists of representatives of the Municipality or of the Commune, of the parents' association, head teachers of schools and a representative of local commercial and business interests. It makes proposals to the Mayor or the President of the Commune or to the Municipal or Communal Council on measures to improve the organisation and functioning of local schools.

These bodies, including other out-of-school participants, allow society to express a view on education. Their participation in the administration of education serves two main purposes:

- they give information to the central level where ultimate decisions are made;
- they contribute to the promotion of the programmes of study to be pursued, to the hygiene of the school environment, to pupil welfare, and to the repair and maintenance of school buildings.

In practical terms, however, the School Committee only seems:

- to have decisive responsibilities concerning financial management given for the functioning of the school;

- to connect local government agencies with the school and to establish a form of social control and democratic administration of school units.

Other bodies are confined to expressing views and informing the head of problems and possible solutions without, however, having the power to make decisions which overrule the head (Stasinopoulou, 1987 and Athanasoula-Reppa, 1992).

3.4 The school headship

3.4.1 Leadership in the primary school

Traditionally the school is a formal organisation (Barnard, 1938, Hoyle, 1986 and Zavlanos, 1984) since it acts in a social environment, has specific objectives based on rules, and, through management structure, co-ordination and cohesion, strives to fulfil social tasks and be an effective organisation. These features are common to all schools and are the internal responsibility of each school. Fundamentally of course, schools are concerned with learning. Teachers in order to fulfil this aim have to work together. However, Smith (1995) noted that the school itself cannot operate in isolation. There has to be a balance between people and organisation that allows both to succeed. The key to effective performance is a successful team that functions within the school. An essential part of

the team is the headteacher who because of the nature of the structure is at the apex of the hierarchical pyramid. The properly-defined role of the headteacher has become diverse and complex over the years since it has been combined with that of manager. The head is required to take on more extended management responsibilities and executive tasks (Evetts, 1994). The expansion in managerial and leadership responsibilities has been linked to higher demands for efficiency and effectiveness (Dunning, 1993). The application of this issue in Greece is analysed in more detail in section 3.4.2.

In most studies of school effectiveness the question 'what sort of headship is effective in creating a school unit which is meeting its goals?' has always arisen. Chapman (1991) in **The Effectiveness of Schooling and of Educational Resource Management** does not give a definition of school effectiveness but offers a broad basis for negotiation as to what might be meant by school effectiveness. The most important school requirement is that teachers should have appropriate qualifications. In the field of education this need can be discerned 'in the ways in which individuals are so transformed as to become the bearers of the values, attitudes and beliefs held to be important by society and by the institutions in which they find expression' (Dimmock, 1993, p.202). A role as complex as that of the headteacher needs support from deputies and all the teachers in a school. School leadership and school effectiveness are closely connected since the headteacher has to ensure that the school fulfils its responsibility in both social and educational contexts. To be

effective, leadership must achieve organisational aims and provide headteachers with the incentive to manage and to advance (Kerry & Murdoch, 1993, p.223). The role of the primary school headteacher (like that of many other managerial positions) is a relatively eclectic one. It embodies the assumption that the headteachers should be active, creative, responsible, energetic and enthusiastic in order to meet the demands which are placed upon them. The head of the school is responsible for internal organisation and needs specific management skills to ensure that appropriate decisions are taken. The headteacher has managerial, educational and professional responsibilities: 'these include co-operative teaching and staff development, reviewing curriculum policy and organisation, improving inter-school liaison and co-operation, and planning school-based in-service training' (Bell, 1988, p.34). The duties of the headteacher are also related to effective curriculum development (coping with the demands for change) in order to secure a stable school environment.

The headteacher needs to have awareness of school needs, to be actively involved in the school's work and to be a forward planner. The authority of the primary headteacher is also to be a curriculum leader and to influence the content of guidelines drawn up by the staff working together or in groups without exercising total and rigid control. The role of the headteacher needs to facilitate the determination of realistic, attainable goals and to develop strategies for the acceptance and success of objectives. The headteacher no longer carries out the leadership task alone (Dean, 1995) but he or she has the ultimate

responsibility for ensuring that the management structure enables the staff team to increase involvement in all aspects of school life. The school no longer depends largely on the personal control and moral authority of the paternal / maternal figure of the headteacher who can no longer claim that this is 'my' school. Instead the possessive pronoun is now widening and has turned into 'our' school (Bell, 1988). Continuous staff development and the involvement of colleagues in decision-making is associated with modern school effectiveness. The headteacher does retain certain responsibilities such as effective use and allocation of resources as a consequence of reviews and analyses of the needs of pupils' learning, effective and appropriate teaching and learning, and continuous searches for improvement. However, 'leadership is not simply confined to the head or deputy. Leadership is shown to exist across the school' (Southworth, 1990, p. 10). The fact is that the headteacher cannot carry this burden alone but needs the co-operation of his or her colleagues in order to achieve all the tasks.

The role of the headteacher requires understanding of pupils' needs, knowledge of what is going on in the classroom and information about the progress of individual pupils (Mortimore, 1988, p. 250-251). He or she should be aware of what is happening in the classroom by spending a considerable amount of time observing teaching (Potter and Powell, 1992, p.12). Through this procedure the headteacher is made aware of teachers' needs and thus it becomes less likely that teachers will be dissatisfied. Southworth (1990) in his

study suggests that where heads asked teachers to provide forecasts of their work plans, teachers communicated more with pupils, inter-pupil co-operation was encouraged and teaching behaviour was found to influence positively the success of a primary school. Headteachers' involvement in controlling pupil behaviour by requesting teachers to keep individual records of pupils' progress is significantly related to more effective teaching and positive leadership.

The head's sense of mission and feelings of leadership indicate a number of functions which can be described as (Mason, 1989):

- **the function of consultancy.** The headteacher of a primary school should be a 'listening ear' and fully supportive of the teachers. Sometimes, teachers cannot avoid bringing personal problems to school. This may affect in a negative way their work since they might be preoccupied with them (Dean, 1995). 'The staff may set up consultations with each other but it appears to be effective only if the head has some involvement' (Mason, 1989, p.36). Thus, the head needs to be sympathetic but his or her top priority is to ensure that 'right' decisions are taken for the smooth functioning of the school;
- **the function of stimulation (encouragement).** This function involves ensuring that teaching staff are able to make professional contributions and it encourages them to give of their best. It co-ordinates the work of the school by allocating roles, delegating responsibilities and seeking the opinions of others;

- **the function of communication.** The headteacher should be a skilled communicator, sharing information about decisions and events, the work and performance of the teaching staff and securing an effective channel of two-way communication;
- **the function of motivation.** The headteacher has to set goals, inspire commitment to the school mission, give direction and purpose to school work, motivate staff and pupils by personal influence;
- **the function of appraisal.** This function involves evaluating effective standards of teaching, critically and constructively discussing professional performance;
- **the function of organising.** The headteacher has to select appropriate staff, determine the rules and responsibilities for all internal school policy-making and seek out for problems, while identifying structured and orderly solutions.

In the final part of this section attention will be drawn to characteristics of an effective headteacher. Bell and Rhodes maintain that 'although there is no accepted definition of effectiveness and more specifically of the relationship between management action and effectiveness, there is evidence that if the necessary pre-conditions are in place education quality will be higher' (Bell & Rhodes, 1996, p.12). Since there is no considerable gap between quality and effectiveness some guidance is given as to what is required to achieve effectiveness in schools. Greater emphasis is given to leadership since

'central to a good school is strong leadership' (DEF 1992:para. 1.33). School leadership in education requires a constant professional effort (Kerry & Murdoch, 1993). Successful school leadership is associated with the following qualities (Coulson, 1985, Blumberg & Greenfield, 1980, Sergiovanni, 1984, Kerry & Murdoch, 1993 and Southworth, 1990) :

- effective heads are 'goal orientated'. They have a mission and a vision of school success;
- effective heads have a high degree of 'personal security'. They introduce change and innovate without feeling unduly threatened;
- effective heads have tolerance of diversity; lack of continuity and stability do not upset them and they are at ease with change and uncertainties;
- effective heads tend to be 'proactive'. They have a clear view about the school environment and implement an effective school policy in order to meet the internal and external demands of the school;
- effective heads are 'sensitive to the dynamics of power'. Through informal networking and codes of professional performance, a successful headteacher arranges coherent interrelationships among teachers and sets activities into their proper order;
- effective heads have an 'analytical perspective'. They judge, examine and analyse facts critically and methodically, which with

appropriate knowledge and management skills leads to problem-solving;

- effective heads behave in a way which enables them to be 'in charge of the job'. They set and pursue objectives and fulfil the demands and requirements made of them.

3.4.2 The Greek reality

In any school the head determines the quality of what happens, or as J. Dean (1995, p.1) puts it: it is possible 'to find excellent teachers in indifferent schools, but unusual to find work of quality taking place throughout the school unless the headteacher and others in larger schools are offering appropriate leadership'. The task of a headteacher is influenced by the size of the institution. However, a skilled head with the appropriate authority and administrative experience can play the most important role in making school management efficient. For Fayol (1949) there are two kinds of authority: that which derives from the office held, and that which derives from personal ability and experience. Both are needed for successful management. In the field of primary education a headteacher has authority which derives from his or her holding the post of head but his or her effectiveness depends a good deal on other personal attitudes and experience: 'leadership without managerial skills can be both pointless and ineffectual and do little for staff' (Waters, 1979, p. 21).

But what about the Greek reality? Do the headteachers have the appropriate authority and qualifications to manage their schools effectively? To answer these questions it is necessary to consider first how Greek headteachers are selected and secondly how administrative work is organised in Greek primary schools.

3.4.2.1 Selection of headteachers

According to existing legislation (Law No 1566/85 and Presidential Decree No 398/95) the selection of heads and deputy heads of primary and secondary schools is made by the appropriate Prefectural Educational Councils. More particularly in March every two years, teachers who wish to practise as a headteacher of a secondary school hand in applications to the appropriate Prefectural Council (PYSPE) within fifteen days from the date the proclamation has been made. Teachers in primary schools who have completed at least eight years of duty can be candidates for a post as headteacher.

The Prefectural Council (PYSPE) makes lists of the candidates for headships of school units within twenty days of the expiration date of the application submissions. These lists are announced in the subdivisions and the offices of Education. The criteria for the choice of headteachers are divided into three categories and are estimated on a numerical scale of 100 as follows:

- scientific and pedagogic grounding and formation (e.g. post-graduate studies, foreign languages, etc.) (thirty-five points);

- official position and teaching experience (e.g. every teaching year is translated into 0.5 points) (twenty-five points);
- ability in management, direction and sociability (forty points).

At first glance the above mentioned procedure may be considered concise and the method of a head's selection be seen as a 'modern' one because it is based on specific criteria. In practical terms, however, it is questionable if selected teachers are appropriate for the post of headteacher because seniority is a basic prerequisite for the selection of a candidate for the post. However, an effective headteacher should one be characterised by ability to co-operate with others and in the possession of a certain outlook and vision. Professional ability is not the only quality that should be sought.

The gaining of a doctoral or masters' degree or the authorship of work relevant to education does not guarantee the ability of a candidate for the post of headteacher. The question to be decided is whether the studies or authorship are connected with the knowledge and the abilities required for good performance as a headteacher. Dunham (1995, p.19-21) noted that 'each person who intends to rise to a position of authority in the school establishment must become fully qualified, not merely in the academic sense but in a variety of management styles and techniques. The successful manager, the one that can effect positive change, is the one that can adapt his or her style to the situation'.

Criteria such as 'ability to co-operate with the Teachers' Council', 'efficiency in management' and 'ability to organise the school area' seem to apply to headteachers who are already in post but of course not to the new candidate teachers who have been teaching for eight years and have not had the opportunity to direct a school. In primary education there is no teacher assessment of quality by any administrative organ and consequently the Prefectural Council (PYSPE) is unaware of the abilities of each candidate for the post of headteacher.

The selected headteachers do not get any further training in management and their duty as a headteacher is based only upon their experience. Saitis (1996) suggests in his study that 90% of the headteachers in primary education have not attended any seminars on administration.

The headteacher of a school gets an allowance of fifteen thousands drachmas for his / her post and can remain in the post for four years. The short period of duration in office of heads has been found to be related to school effectiveness. In schools where the heads had been in post for three years they were associated with positive effects because mid-term serving heads are more likely to have adopted an efficiency management strategy, to have had greater influence on teaching strategies and to have operated a school policy on the use of guidelines (Southworth, 1990).

From what has been mentioned above it is evident that the training of headteachers has been neglected in Greece. The central

authority changes the law concerning the selection of the managerial executives of education every time the government changes. The central authority has also clearly defined the legal framework of authority and responsibility so that headteachers are inhibited in using their initiative in exercising their duties. Then again central government has made no programme for developing executives in education nor has it given motivation, either economic or ethical for priority teacher managers (Saitis, 1996). Selection is the starting point of professional development for teaching staff and the focus on gaining this promotion involves teachers or future headteachers in making significant decisions about work choices and lifestyles. In the case of headships work choices are closely related to school effectiveness and have important positive results, but, as Saitis (1996) continues, the headteacher of a Greek school is more a traditional bureaucrat than a manager-leader.

3.5 Examination of how the administrative work is organised

In the previous section it was mentioned that **first** the school is a formal organisation since it acts within a social environment, has specific objectives based on rules and through management structures, co-ordination and cohesion, strives to fulfil effectively its purposes and **second**, a skilled head with the appropriate authority

and administrative experience can play the most important role in making school management effective.

With regard to devolution of power in the Greek school system the headteacher does not have the appropriate authority (Saitis, 1996) in order to manage effectively school affairs such as personnel, pupils and financial matters. Because of the overcentralised administrative system almost all school issues need ministerial approval. In practical terms this means that the control of the MNERA over school activities not only reduces the meaning of school self-administration but destroys heads' initiative for creative decisions.

Assuming that the majority of the primary schools (97.4% MNERA 1996) in Greece are public organisations and they spend a large amount of public money; and at the present time the Greek economy continues to operate in an unstable and inflationary climate (see Chapter One), then good school management should be one of the main aims of government.

To this end, it is very important to bring the issues of school administration into focus so that they may be understood more clearly and underline the need for a new way of looking at school management.

The prior concern in this section is a critical examination of some of the administrative aspects of the relationship between primary schools and the upper two administrative levels of education (PEAs and MNERA). The following four examples belong to the sectors of pupils' affairs and personnel and are designed to show the existing

managerial situation in the field of school institutions. (In other words these four examples attempt to show that Greek primary schools do not enjoy any kind of autonomy). In particular the first two examples given below (one, **pupils' late enrolment**, from the sector of pupils' affairs and the other, **irregular leave of a teacher**, from the personnel sector) indicate the relationship between schools and PEAs; the remaining two examples belong personnel affairs (one, **sabbatical leave of a teacher**, from the teaching staff and the other, **appointment of cleaners**, from the supplementary staff). These indicate the relationship between primary schools and the MNERA. (For details about the administrative structure of primary education in Greece see Figure 2.1 at the end of the thesis, Appendix One).

Example One. Pupil's late enrolments.

Suppose that a parent, who lives in a village of the prefecture Aetolias and Akarnanias, wishes to enrol his child in the primary school of his village, on the 20th June. It is known that the normal enrolments of pupils in the primary schools of the country take place from the first until the fifteenth of June (Presidential Decree No 497/81). After that, late enrolment demands the approval of the appropriate Head of the Education Office. More particularly the following procedures are observed:

Stage A: Activities within the school

- parents' application with all certificates which are relevant;
- register of school / headteacher;
- appropriate teacher draws up a document for the Education Office / Head's signature;
- typing of documents and sending them to the appropriate Education Office.

Stage B: Activities within the Education Office

- register / Head of Education Office;
- head of appropriate department / clerk;
- appropriate clerk checks file / draws up a document for approval;
- Head's of Education Office signature;
- typing of document-decision / sending it to school.

Stage C: Activities within the primary school

- register / Headteacher;
- appropriate teacher draws up a document-notification of Head's decision to parent;
- headteacher's signature / sends it to parent concerned;
- appropriate teacher registers the pupil in the school record.

From stage A until the last stage C, thirteen bureaucratic activities intervene which involve approximately fifteen employees who take a processing time of at least eight days. The calculation of time

spent and the work load is a result of personal discussion with headteachers and Heads of the Education Offices of the Prefectures of Aetolias and Akarnanias². The figures are given approximately and under 'normal' conditions.

After that the question arises: is this procedure necessary? If yes why? If not how can it be shortened? To answer these question this issue will be examined by using the technique 'O and M'.

Example One : critical analysis of Stages A, B and C

Questions	Answers
What is done?	Decision-approval for an overdue enrolment.
Where is it done?	At the appropriate Office of Primary Education.
Why is it done there?	Because the Presidential Decree No 497/81 declares that pupils late enrolments are allowed only after the approval of the appropriate Head of Education Office has been obtained.
Is the decision of the head of Education Office necessary?	In the opinion of the researcher, it is not necessary because primary education is compulsory, and all late enrolments are approved by the Heads of Education Offices. This is an

² Interviewing headteachers of Primary Education was the method chosen for the selection of data to the calculation of the bureaucratic activities, the spend time and the use of the work force. The interview schedule can be found in Appendix Five of the thesis. It must be noted that the Greek Public Primary Schools function as public services and follow the same administrative procedures.

Questions	Answers
	<p>expression of the over-strong bureaucracy of the Greek administrative system rather than an effective control on school management. Furthermore, this kind of control may be interpreted as an example of the limited authority of the Greek headteacher.</p>
<p>How else should it be done?</p>	<p>Head of Education Office approval ought to be abolished because his interference not only restricts school efficiency but also encourages the development of more complicated bureaucratic procedures. In other words the approval of late enrolments should be done by the appropriate headteacher. In this way the above procedure would be shorter and the headteacher become responsible for his own activities. In addition the headteacher knows and understands the problems of the local families better than the Head of the Education Office.</p>

Example Two. Irregular leave of a teacher.

Suppose that a teacher of elementary education wishes to be absent from his or her school e.g. for one or two days owing to a serious family problem. By law (Presidential Decree No 611/ 77 and Ministerial Decision No 1749 / 81) the teachers of Primary and Secondary Education can be absent seven days in each school year because of serious personal or family problems. The approval for this kind of teacher's leave is given by the appropriate Head of the Education Office. It follows that a teacher must submit his or her application to the Education Office through his or her headteacher. In detail the following procedure is observed:

Stage A: Activities within the School

- teacher's application / register of school / headteacher;
- appropriate teacher drawing up a document;
- headteacher's signature / typing;
- sending teacher's application to prefectural education authority.

Stage B: Activities within the Education Office

- register/ Head of Education Office;
- head of appropriate department / clerk;
- drawing up a document decision;
- hierarchy / Head's Education Office signature;
- typing document / sending it to appropriate school.

Stage C: Activities within the School

- register / headteacher;
- head's of Education Office decision is notified to teacher concerned.

These eleven bureaucratic activities involve approximately sixteen employees and demand time of about five days³. But is this procedure necessary? Examining this issue under the technique 'O and M' we finding the following:

Example Two : critical analysis of Stages A, B and C

Questions	Answers
What is done?	Decision-approval for irregular leave of a teacher.
Where is it done?	At the appropriate prefectural educational authority.
Why is it done there?	Because it is imposed by law. It means that the school manager (i.e. the headteacher) has to follow this procedure even if he or she does not find it necessary. Given that the Greek parliament passes laws and 'is merely a rubber stamp for government decisions' (Punnett, 1980, p. 182) the responsibility for the efficiency of the school administrative system in Greece

³ Interviewing headteachers and Heads of the Education Offices of Primary Education was the method chosen for the selection of data for the calculation of bureaucratic activities, the spend time and the use of the work force. The interview schedule can be found in Appendices Two and Five of the present thesis.

	belongs to governments which pass laws with traditional centralised procedures.
How else should it be done?	By a decision arrived at by the appropriate headteacher. In this way the procedure would be shorter and the headteacher-manager responsible for his or her own activities. Moreover, headteachers know and understand the needs of their own subordinates better than the Prefectural Educational Authorities.

Example Three. Sabbatical leave of a teacher for educational reasons.

Suppose that a teacher of primary education wants **sabbatical leave from his or her school for educational reasons e.g. for post-graduate studies in a Greek university.** According to law No 1566/85 a teacher must submit his application and all necessary certificates to the MNERA (to the central council for primary education) through the appropriate school authority. More particularly this administrative work requires the following activities:

Stage A: Activities within the school

- teacher's application / Register of the primary school;
- headteacher / appropriate teacher draws up a document;

- typing / head's signature / sending it to appropriate Education Office;

Stage B: Activities within the Education Office

- register of the Education Office / head;
- appropriate clerk / drawing up a document to MNERA;
- hierarchy / head's signature;
- typing of the document / sending it to MNERA with teacher's application and all certificates.

Stage C : Activities within the MNERA

- register of the MNERA / clerk;
- appropriate Division / department;
- appropriate clerk / checking all documents;
- director of the appropriate Division / writing his or her suggestion for the central council for primary education known as KYSPE;
- meeting of the KYSPE / decision about teacher's application;
- writing / typing of the minutes / checking of typing;
- ratification of minutes by the council;
- appropriate Division / clerk / drawing up a document-decision about teacher's leave for educational reasons;
- hierarchy / minister's signature;
- typing of document / sending it to the appropriate prefectural educational Office.

Stage D: Activities within the Education Office

- register of the Education Office / head's;
- appropriate clerk notifies the ministerial approval to appropriate teacher and his or her school.

From the stage A until the last stage D, there are nineteen bureaucratic activities which involve approximately twenty four employees, which uses a time scale of at least thirty-five days⁴. A manager here asks the following question : Are these bureaucratic activities necessary? Using the technique 'O and M' we find the following:

Example Three : critical analysis of Stages A, B, C and D

Questions	Answers
What is done?	Leave of a teacher for educational reasons.
Where is it done?	In the central service of the MNERA.
Why is it done there?	Because it is imposed by law.
Is the Minister's approval necessary?	At first sight the Minister's approval could be considered as a necessity in the sense that the MNERA is responsible for the national education policy and so

⁴ Interviewing headteachers, Heads of the Education Offices and the Head of the department E of the Division of Personnel of Primary Education of MNERA was the method chosen for the selection of data for the calculation of the bureaucratic activities, the spend time and the use of the work force. The interview schedules can be found in Appendices Two, Five and Six of the thesis.

it has to control and co-ordinate all the activities of schools. It means that school management is controlled and influenced by the Ministry of Education while the relations between MNERA and schools can be characterised as day to day activity and concerned with routine matters. From this and Millett's (1954) view that an organisation (public or private) must have authority in order to achieve its purpose in giving direction to group effort the responsibility of Greek schools with regard to State control is limited.

On the other hand there are the arguments that first, the MNERA as a primary self-existent unit of State should delegate more staff tasks and centralise less -if not all- day to day bureaucratic tasks, and second the schools should act as real self-governing organisations in accordance with the constitutional order (article 101 notes that the State administration is organised according to the decentralisation principle). Given that in the

existing Educational Acts there has not been any innovation in the school administrative system, the first thing which a manager might do is to suggest to the Greek government new methods of work and new procedures for school affairs. Every school of primary and secondary education should act within a defined sphere of authority and the central control over the school administration should be confined to the most important affairs such as financial subsidies, planning for the annual number of teachers' appointments; defining, evaluating and creating the conditions for meeting educational needs. In these ways a primary school could be more effective and more responsible for its activities. Then one should not forget that an accountable manager (e.g. headteacher) is one to whom specific authority over part of an organisation's resources has been delegated and who is required to answer for the results he has obtained from the

	<p>deployment of those resources. For a primary school the term 'responsibility' can be taken to mean that it is a responsive element in an educational hierarchy (e.g. PEA's and MNERA) to public opinion and acts in accordance with its charter while the central control can be regarded as investigative to check whether the schools have abused the legal powers that they possess by law.</p>
How else should it be done?	<p>Given that first the decision of central council is based upon criteria which are stated by laws (Presidential decree No 611/77 and law No 1943 /91 and law No 2158 / 93) and not upon specific study of teachers certificates; and second the members of prefectural council for primary education (PYSPE) know and better understand the needs of its prefecture, the decision about the leave or not of a teacher for educational reasons should be a task for PYSPE. Moreover the procedure would be shorter and the prefectural council would be responsible for its own activities.</p>

Example Four. Appointing school cleaners.

According to Act No 1892 / 90 article 113 and No 1894 / 90 article 5, cleaning of the primary and secondary schools is arranged by contracts. Cleaners are hired for the school year by the Head of each Education Office. The annual expenditure for the cleaning of schools is determined by ministerial decision from the Ministry of Education and Finance. This work requires the following activities:

Stage A: Activities within the MNERA

- each August the Division responsible for the administrative affairs of primary and secondary education draws up a document for the appointing of school cleaners;
- typing / hierarchy / Minister's signature;
- appropriate clerk / register of the MNERA;
- sending the document to Cabinet council.

Stage B: Activities within the Secretary's Office of Cabinet

- register of Cabinet / secretary;
- appropriate clerk / suggestion for the council of Ministers;
- meeting of the appropriate Cabinet committee / discussion / decision;
- writing / typing of the minutes / checking of typing;
- ratification of minutes by the Ministers;
- appropriate clerk / drawing up a document-approval;

- hierarchy / secretary's signature;
- typing of document / register of Cabinet;
- sending it to the MNERA.

Stage C: Activities within the MNERA

- register of MNERA / appropriate Division;
- director of the appropriate Division / head of appropriate department;
- appropriate clerk / drawing up a document for all Divisions of primary and secondary education of the country;
- hierarchy / Director's signature;
- typing of document / checking of typing;
- register / sending it to all Prefectural Educational Authorities.

Stage D: Activities within the PEAs

- register of the PEA / head;
- appropriate clerk / drawing up a document for all headteachers of its educational area;
- typing / head's signature;
- register of Education Office / sending it to schools.

Stage E: Activities within the school

- register of the school / headteacher;
- appropriate teacher / drawing up a document announcing school cleaners' vacancies;

- head's signature / announcement of the vacancy (or vacancies) to the local daily press according to the order of law;
- the application forms of the candidates along with all the necessary papers for their evaluation are submitted to the Secretariat of the school Committee within fifteen days from the day of announcement in the local daily press;
- meeting of school committee / discussion / voting / candidate who has gathered the majority of total votes is elected to the vacancy;
- writing / typing of the minutes / ratification of minutes;
- appropriate teacher / drawing up a document-proposal to Head of Education Office for the elected candidate;
- headteacher's signature / register of the school;
- sending it to appropriate Education Office.

Stage F: Activities within the Education Office

- register / head;
- appropriate clerk / study of file / drawing up a document-contract;
- head's signature / sending it to appropriate school.

Stage G: Activities within the school

- register / headteacher;
- appropriate teacher notifies the document to the School Committee and the appointed candidate (school cleaner).

Approximately thirty-seven bureaucratic activities are involved which embrace seventy-five people and take about forty-two days to complete⁵.

Example Four : critical analysis of Stages A, B, C, D, E, F and G

Questions	Answers
What is done?	Appointment of a school cleaner.
Why is it done?	Because it is required by the cleaning needs of the school.
How is it done?	By making decisions in the field of central and prefectural government.
Is this task necessary?	It is not necessary because in practical terms firstly the Cabinet is making a decision about the total number of school cleaners without investigating the real needs of the Greek schools, secondly the PEAs appoint all the elected candidates, a third delay is created because of bureaucratic procedure and finally it is against the economic development of the country in the sense that it occupies administrative employees in day to day routine matters. Therefore, it is evident that Greek administrative system cannot function with exhibiting traditional and complicated administrative procedures

⁵ Interviewing headteachers, Heads of the Education Offices and the Head of Department B of the Division of the Administrative Affairs of Primary Education of MNERA was the method chosen for the selection of data for the calculation of the bureaucratic activities, the spend time and the use of the work force. The interview schedules can be found in Appendices Two, Five and Seven of the thesis.

	(since even the appointment of school cleaners for the educational sector requires Cabinet approval). It is worth emphasising that there is a demand for organisational effectiveness and better organisational performance.
How else should it be done?	By a decision issued by the appropriate headteacher or the president of the corresponding school committee. In this way the above procedure appointing school cleaners would be shorter and the school management responsible for its activities.

These examples are not exceptional within the Greek administrative system. Recent studies suggest that the striking features of the educational administrative system (Saitis, 1996, Makrydimitris, 1996, Kaltsogia-Tournaviti, 1995, and Report of Ministry of Presidency, 1992) are its centralisation, complexity and traditional methods of work. Under these conditions it is questionable if the school institutions can carry out their functions adequately.

Because of negative pressures in the school administrative system, the Greek government should examine systematically the machinery of its various administrative levels to ensure that decision-making processes become more effective.

The **first** reform must be in the devolution of power from the central administration of MNERA to PEAs and school institutions. Within the field of primary schools the term 'devolution' means that

decisions about most school problems and affairs should be taken by the headteacher or teachers' council or immediate management of the schools. To do this the schools should have their charters to function as self-governing public organisations while supervision by MNERA should be confined to evaluation and control of legal matters. The day to day administrative control of MNERA over the PEAs and school activities is a strong bureaucratic expression rather than a fundamental constitutional supervision because from the above examples it is evident that the MNERA does not approve the legality of school or PEA activities, but simply carries them out. So, by a clearly defined devolution of power, school management can be delegated as an efficient provider of public services in clearly defined ways. Routine, loss of time and bureaucratic action would be cut down and it would overcome the physical inability of central administration to deal with detailed problems throughout all the schools.

To give, the Greek school real power over its own affairs it is necessary for the parliament to pass an Education Act including:

- a definition of what exactly the authority of primary schools is, because authority is the basis for accountability. Accountability here means that the school government concerned shall render an account of its actions to the State and if this authority is dissatisfied it should take necessary steps to put matters right;
- an effective control system. A clarification of methods of controlling school activities, through for example inspectors able to scrutinise

all administrative and financial activities at the end of the school year, would be a useful instrument of protection from the abuse of authority in schools.

Secondly, the plethora of educational laws related to school affairs should be replaced by a new education act introducing simpler administrative procedures and better methods of working. In other words the codification of school legislation is an essential prerequisite for raising the efficiency of school management by reducing the amount of bureaucratic activities in order that teachers and civil servants will not have to spend time on day to day routine matters.

Thirdly, the reform should provide stable and clearly defined criteria for a legal framework concerning the way top executives in education are selected. This framework should be the result of an extensive objective analysis. It should be taken into consideration, however, that the lack of political consensus in educational matters not only means strong reactions when decisions are applied but also explains why the educational laws in Greece are always replaced whenever a new government is in power.

Finally, necessary guidelines should be provided so that efficient teachers obtain the post of headteacher, teachers who would communicate with and understand the people involved in education and who could motivate staff in order to establish an effective school environment. These guidelines should be the source of inspiration

and encouragement to the members of the school organisation; they should also create the appropriate atmosphere for work.

3.5 Summary and conclusions

In this chapter we have considered the management of Greek primary schools. More particularly we have examined the role of the headteacher and how administrative work is organised in Greek institutions. Our aim has been to illustrate a current of thought opposed to the modernisation of the educational administrative system in a period in which governments are increasingly faced with the necessity to adapt their systems to new conditions, demands and opportunities.

From the foregoing analysis we may conclude the following: in Greece, the primary schools are not staffed by open competition but by a closed list. This method of staffing may follow an impartial procedure but it creates serious problems from the pedagogical and social points of view because students who graduate today from the universities will only be appointed in schools in thirty years' time.

There is no clear definition of areas of responsibility and authority between the Teachers' Council and headteacher and the latter does not have the power to manage school issues. This legislative dichotomy may cause opposition and conflict among the teaching staff.

The bodies connected with education (e.g. school council, parents' association) are confined to expressing their views and informing the educational hierarchy about the problems of schools and their possible solutions, without having the power to make decisions about improvements in the efficiency of school institutions.

The role of the headteacher is neglected by the State in the sense that a head does not have the necessary authority and managerial training to control internal school organisation and to manage school affairs effectively.

The Greek primary (and secondary) schools operate without enjoying any type of administrative independence because all school issues demand 'ministerial' or 'prefectural' approval. The school authorities are thus controlled and influenced by the MNERA and PEAs while the relationship between MNERA and schools could be characterised as excessive concern with day to day activity and with routine matters.

The responsibility for the complicated procedures of school affairs lies with the conventional Greek legislator who insists upon traditional methods of working and wider issues in education suffer from the obfuscation of tradition. This results by the absence of a systematic analysis of school issues from both educational and managerial points of view.

CHAPTER FOUR

INVESTMENT IN HUMAN CAPITAL AND ECONOMIC DEVELOPMENT

Chapters two and three discussed the external and internal management of the Greek primary schools. The achievement of the tasks of school organisations depend on several factors such as effective school management, efficient financial provision. However, decisions about educational expenditure depend not only on monetary but also on non monetary factors such as investment in human beings. Thus, it is necessary to discuss the concept of human capital and its contribution to the economic development of a country.

4.1 Education and Economic Development

A useful starting point for the present chapter is to give the meaning of *development*. Although a number of critics (Colman & Nixon, 1986, and Meier, 1995) claim that development is not a simple concept which can be defined easily, nevertheless, in this chapter we will try to have a simple and uniform meaning and consider development as a 'continuous process of improvement based on a set of values' (Colman & Nixon, 1986). When we are saying set of values, we mean that when we compare the levels of development of different countries, we have to take into account the conditions in society. There is no universal agreement about these desired

conditions. Each person has their own tastes and preferences about life-style, education and relationships with the rest of society. Therefore, comparisons of the development of different countries depend on the value judgments of the analysts involved.

One basic issue is the extent to which an explanation and perhaps a fuller interpretation, of development takes into account non economic factors. 'The type of government, the legal system, the standards of education and health, the role of family and religion, are factors that determine a country's development.' (Meier & Baldwin, 1962, p. 14).

Development can be identified also as a process whereby the average Gross National Product of a country may be increased over a long time period. The word 'process' is of great importance since it implies the operation of certain conditions or characteristics for the interpretation of economic development (Meir, 1995, and Colman & Nixon, 1986).

One has to make an important distinction when writing about development, economic growth and development are not synonymous (Colman & Nixon, 1986). Streeten (1972, p.31) suggested that 'just as there can be economic growth without development there can be development without economic growth'. Economic growth implies simply 'more output' while development implies both more output *and* transformations in the technical and institutional arrangements by which it is produced. Thus, economic development involves something more than economic growth, it is growth plus change. It is the

expansion of an economy through a widening process. The changes may be in attitudes and values, production and technology (Meier, 1995). Economic development may be defined 'as an upward movement of the entire social system' (Myrdal, 1968, p.1869), that will be seen in some or all of: a rise in productivity, social and economic growth, improved institutions, industries, changes in attitudes, ideas and a rationally coordinated system of policy measures that can offset the undesirable conditions in the social system.

Economic development is now of practical importance since it can be identified with an increase in human welfare. There are some economic indicators (measures or criteria) that can be used in order to measure development in each country (Meier, 1995, Stern, 1991, and Meir & Baldwin, 1962). They include:

- the Gross National Product or Income (GNP); a significant indicator for economic development;
- standard of living; another indicator that gives a picture for the economic and social welfare;
- per capita output, through when using this measure it is necessary to consider that the contribution of total output to each individual's satisfaction depends on what is produced as well as how much.

In order to measure development as distinct from economic growth, some writers have attempted to include measures for measuring welfare. Adelman & Morris (1973), for example, produced

as an indicator of political development a measure of the degree of political participation.

Capital has a strategic position in economic growth and development. The vital importance of capital stems from the fact that it is the only factor of economic growth which can be increased quantitatively and because it generally creates extra productivity.

It is known from the literature (Psacharopoulos, 1973, Colman & Nixon, 1986 and Meier, 1995) that capital can be accumulated in two ways: physical capital and human capital. Adam's Smith definition of capital includes 'the acquired and useful abilities of all the inhabitants'. Here natural resources means the physical capital, especially the land which constitutes the available resource of productivity.

A well-known classic economist, Ricardo (Meier & Baldwin, 1962) asserts that land is a central concept of the analyses of indestructible productive powers. He considers agriculture as the most important factor for economic development. It is known from the literature that product (P) is a kind of function of land inflows R, labor (L), capital C, and the technology of production T (Ghatac, 1995, p.30, and Meir & Baldwin, 1962, p.28):

$$P = f(R, L, C, T)^1$$

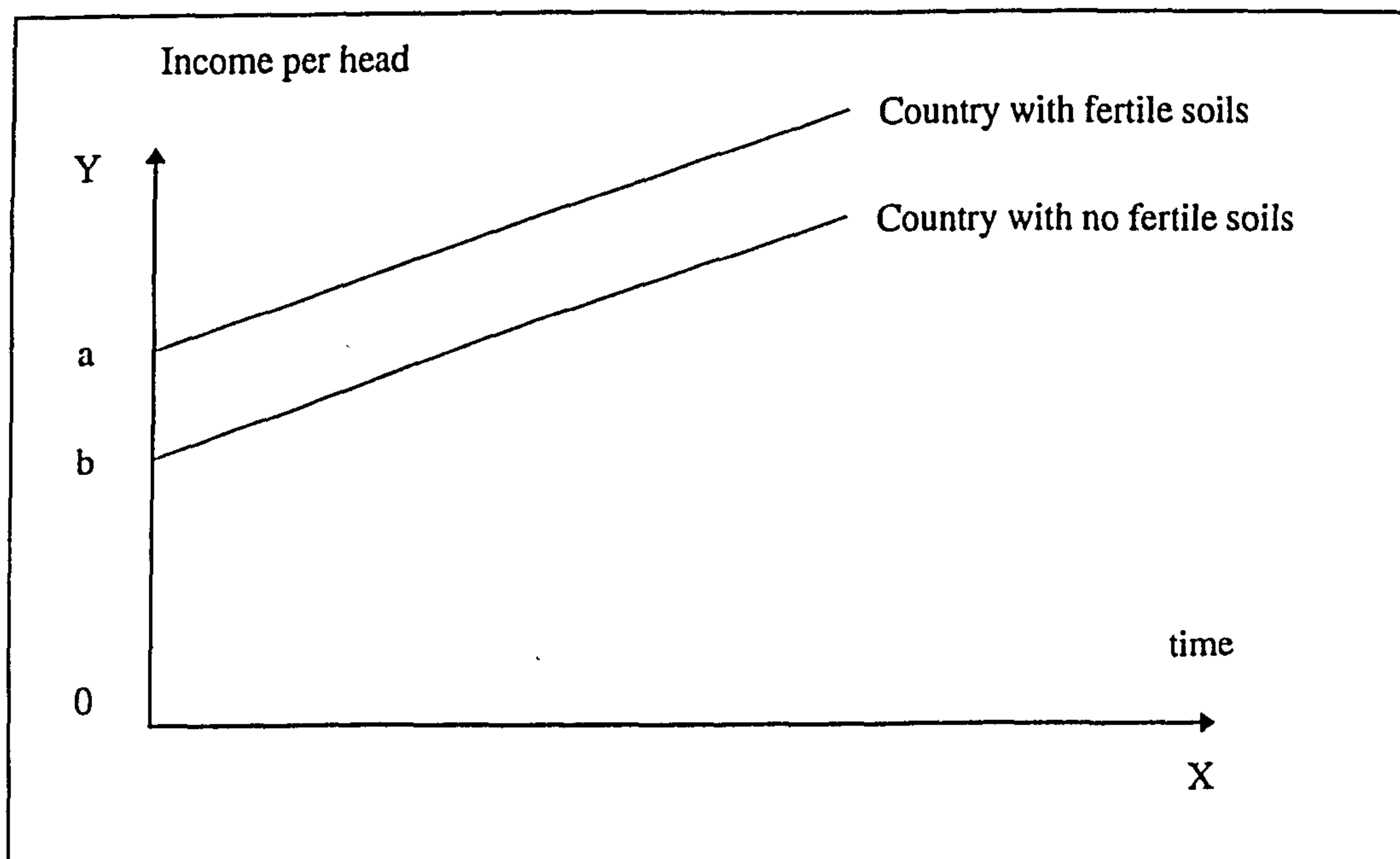
The above equation states that in early stages of economic growth, land is the basic resource of production because the most important concept is food and so land is considered as the 'present

from god'. Given that the supply of the land is non-elastic and does not increase, it is obvious that with the gradual natural rise of the population, the relationship between land and labour has declined. Under these circumstances, a rise in the national product can be derived from replacement of labour and land by capital-based services.

A country, therefore, which has more fertile soils, reaches a higher level of development either by soil-product relationship or by a marginal natural product of the used soil.

Figure 4.1

Figure 4.1 shows the contribution of the production factors in economic development.



Source: Koutsoumaris G., Economic Development and Development Policy (Οικονομική ανάπτυξη και αναπτυξιακή πολιτική in Greek), Spilia, Athens, 1979, p 70

¹ This is a sample of a regression function such as will be further discussed in chapter five. The function shows that the dependent variable P depends on (is a function of) the independent variables R, L, C, T.

The availability of an abundant agricultural soil is not necessarily a sufficient factor of economic growth. However, it serves well as a principle, that the agricultural soil has to be connected with labour (i.e. the physical and mental effort) so as to lead the country to higher stages of development.

The growth of agricultural production comes from the investment of capital in the form of fertilizers, improved seeds etc. which helps to improve the productivity of the land. It has been observed that with such investment we have greater productivity than from unimproved, unintensively farmed land. For instance, in Greece during the period 1948-67, agricultural production increased by 75%.

The concept of human capital theory was first introduced in 1960 by Theodore Schultz. Human capital as an economic measure has been widely known for over three decades during which the literature for this theory has grown an accelerating rate. 'The concept of human capital is the idea that people spend on themselves in diverse ways such as purchasing health care, acquiring additional education, not for the sake of present enjoyments, but for the sake of future pecuniary and non-pecuniary returns' (Blaug, 1987, p.102). This expenditure may be considered as an investment rather than consumption, whether it is taken by the people or government on behalf of people.

The movement to human capital as an element of economic activity was based upon the following observations (Mackay, 1993):

- physical capital accumulation alone does not accurately explain economic growth;
- the substitution of human for physical resources at higher levels of economic development;
- the observation that after the destruction of their physical capital in second World War, the Japanese not only restored their pre-war living standards but also achieved an impressive rate of growth by investing in people;
- greater demand for higher education by the labour forces. This was especially in the UK where the demand for education was high and was insufficient to cover market needs.

Investment in human capital became extremely important in the 1960's. Human capital like physical capital expands productive capacity; the skills, qualifications and resources of labour forces can be more important than physical capital, though human capital is not recognized in national accounts. The Japanese have shown that in some circumstances human capital is even more important than physical capital in terms of national economic success.

For Schultz (1961) and Karabel & Halsey (1977) human capital has four characteristics:

- it is an element of human being;
- it is a capital because is a resource for future satisfaction;
- it cannot be separated from the person who holds it;
- it cannot be transferred, sold, rent or inherited.

Tyler (1977) claims that a nation which does not invest in its people will inevitably suffer in the future. Human capital is a kind of national investment which creates social and individual wealth. It is a base for economic development because material wealth can be quickly restored after destruction but ideas cannot be replaced if they are lost. An improvement in the quality of 'the human factor' is as important as investment in physical capital. Physical capital can always be replaced as long as ideas and understanding remain important.

Investment in human beings has been a major source of development especially in advanced countries. An advance in knowledge and application of new ideas are necessary for economic development. 'Although investment in material capital may indirectly achieve some lessening of the economic backwardness of the human resources, the direct and more decisive means is through investment in human beings' (Meier, 1976, p.520).

A considerable amount of empirical work has been done by economists in order to see how human capital performs and promotes economic development. Ozlu (1996) examined two types of growth models:

- a learning by doing model that assumes physical capital and consumption are the result of work and looking for new jobs;
- a human capital investment model that assumes human capital is not a by-product work and that the allocation of the present physical capital affects the individual's capital level in the future.

His paper focused on the quantitative implications of growth models for economic fluctuations. The results suggested that both models perform better than the standard growth model which postulates that capital and labour hours are the only variables that determine output. The results also showed that human capital affect the ability of the models to predict the business cycle. Benhabib & Spiegel (1994) examined the importance of physical and human capital for the determination of economic development. Results based on a standard treatment of human capital were unsatisfactory and disappointing because human capital failed to be significant in the determination of economic development. When, however, they used an alternative approach entering human capital as the most important influence on total productivity, then the results were better and more positive. In this model human capital played at least some part in determining the growth of per capita income.

O' Neil (1995) examined the relationship between human capital and income inequalities across countries. He did that by decomposing national income into three components: one to education, one to the return from education and a residual. The results indicated that

changes in the human capital level through education provide a good predictor of income convergence and also encourage the introduction of new techniques. These tend to increase the return of education in favour of developed countries at the expense of the less developed. Nehru, Swanson & Dubey (1995) also investigated the contribution of human capital to economic development. They argued that high levels of physical and human capital are not a guarantee for success but the division of expenditure between these two investments has critical consequences in the future. Their work presented a description of annual education stocks (human capital) and other variables for 85 industrial and developing countries for the period 1965-87. The results showed a close relationship between the average education stock and other indicators of development especially those that affect per capita income.

As the study of Nehru, Swanson & Dubey shows, one of the most important ways to express human capital is through education. Recently, many economists have found an important link between the percentage of educated people and a country's national economic development. They argue that education serves as an engine for economic development (Garlino, 1995). Education affects the economy in several important ways. It increases the flow of skills and it assists people to acquire new techniques thus enabling them to learn modern production methods and to adapt themselves to changing techniques. Investment in education generates a fuller life for the

whole population in the future and increased contribution to the labour supply by the educated person.

Other research (Mackay, 1993) of comparisons between UK and W. Germany showed that education has a very close relationship with productivity and training. Looking at this research more closely, it showed that the 'introduction of new methods and techniques proved easier in W. Germany because there is higher level of expertise on the shopfloor, greater flexibility' (Mackay, 1993, p.72). From this example one can conclude that productivity and flexibility are firmly based on education and training.

Because education competes for resources with other productive investment, it is important to determine what proportion of the public budget should be directed to education. 'And within the education system itself it is necessary to establish priorities and requirements for the various levels of education' (Meier, 1976, p.522).

The relationship between the growth of population and economic development can be considered both as a 'challenge' and as a 'response'. Population growth has the challenge of feeding extra mouths and the response has to come from increased economic welfare. At least in the short term most of the effects of rapid population growth are negative (Katzen & Ghatac, 1995, Meier, 1995 and Sen, 1994). From the collective work of these authors we find the negative effects are:

- with a stable national income, population growth can only worsen the average standard of living;
- it reduces the man / land or man / human resources ratio and increases the dependency ratio non working / working population;
- it increases the population density, a fact that can lead to environmental and social problems;
- in a poor or undeveloped economy a rise in population can lead to income disparities.

The alternative argument that population growth can be a stimulus to development is supported by the observation that, given sufficient available resources, a higher percentage of the population can be employed and so benefit the total output. Another argument is that the demand for more provision of social capital such as education, health services etc. may raise the social and economic provision per head (Elkan, 1973).

Equal education for women has led to a decline in the rate of population growth which is another of the most important factors affecting economic development. A woman's education is important for her contribution to the family and also for her contribution to society, thus acting as a key to economic development. Consequently programmes focused on women so as to make them productive and earning members of society, contribute to family well-being. The role of women in various economic activities must be taken into account in

order to enhance women's social and economic contribution to development in long term (Meier, 1995).

It is especially important to observe that basic education, at primary and immediate post primary level, serves to increase an individual's knowledge base so that it helps the person to take better decisions. The provision of high quality primary education has a critical role for every country as it provides them with a competitive advantage. The East Asian Economies stoked their superior performance with an educational advantage because they accumulated both physical and human capital more rapidly than other economies. They kept their advantage in rapid growth by investing a higher than average percentage of their GDP in primary and secondary education. For example Indonesia, Korea and Thailand devoted more than 80% in year of their budget to primary and secondary education (Page, 1994). The experience of these countries shows that expansion and improvement to formal (primary and secondary) education promote successful economic development. Given that education has a cost, the length and the spread of education depends on the revenue of each country. Less developed countries appear to invest relatively more in primary rather in higher education.

To conclude this section, the correction of a country's lack of human capital is not easy because it demands heavy investment in education over a long-period of time. As it has already be shown,

investment in people may lead countries to a state of rapid economic development.

In order to attain higher rates of economic development, it is suggested that countries (especially less developed countries) should satisfy the following points:

- have balanced investment in human and physical capital;
- continually adjust the educational system in order to meet future demands for particular skills;
- direct investment into primary education during the early stages of development.

4.2 Benefits of Education (Rate of return)

There has been a general attempt to calculate the rate of return on education. Education is an investment to help people take part in the functioning of the economic and social system to the extent that it improves their abilities and thus increases the future earnings of people (Schultz, 1961). Education outlay carries the joint features of consumption and investment. Resources are consumed as teachers are trained and schools are built. Investment is gained as pupils acquire skills needed in the workplace. There is, however, a distinction in education investments between those which generate imputed income and those which increase earnings to the labour supply (Meir, 1995).

Although education and earnings are linked, earnings as a result of education are not directly measurable so the effects of education could not be isolated statistically. The difference in earnings associated with different levels of education cannot be ascribed solely to education. 'It is altogether proper that people should prize highly the cultural contributions of education and they will continue to do exactly that; but it is very short-sighted of us not to see its economic contributions' (Schultz, 1961, p.63).

However, the rate of return can be divided into 'private' and 'social'. 'A **private rate of return** means that students draw money from their families in order to finance their studies' (Psacharopoulos, 1973, p.21). People 'sacrifice' some money to get education today in order to improve their human capital, receive earnings (possibly in the form of higher wages since employers are willing to pay higher wages to educated workers) and thus to consume more in the future (Carlino, 1995). The standard approach to measure the private rate of return is by comparing the income received after education (S) with that which would have been received in the absence of education (U), with the difference attributed to education being expressed net of tax, it is the post-tax differential which determines the private rate of return (Blaug, 1987).

On the other hand, the **social rate of return**, takes account of government expenses for education. Social returns measured by the differential between income with education (S-U) before tax i.e. social return includes greater tax paid on higher income. 'Social rate of

return (returns-costs) differs from private rate of return' (Blaug, 1987,p.5). The calculation of the social yield of education it is not the explanation of some social or public decisions but is a means to greater clarification of the nature of these decisions. 'Therefore, the private and the social rate of return are subject to different criteria of judgment' (Blaug, 1987, p.10). Usually, the social rate of return is lower than the private. In the USA and in Britain, for example, the private rate of return exceeds the social rate and this tendency is greater in higher education. Although, the costs of education are often heavily subsidized by the government, the returns that accrue in the future are more heavily discounted than the costs of education borne by the state which are incurred initially (Psacharopoulos & Woodhall, 1986). The distortion incurred by the public subsidization of education means that certain levels of education will be profitable for individuals whereas for society as a whole it is not. The maximum levels of this kind of distortion (the difference between the private and social rates of return) are found at university and postgraduate level since those levels are heavily subsidized in most countries of the world but yield predominantly private returns (Meir, 1995).

However, the poor rate of returns from postgraduate education follow from an approach which accepts that we can measure return to society in terms of earnings following education. This assumes a 'marginal productivity world' where each person is paid according to these contribution. The big expansion of demand for postgraduate education means that these can be accommodated only at full social

cost (Todaro, 1994). For postgraduate education the low return partly reflects low direct earnings in the university sector for those with these qualifications (Marshall, 1966). This is because the marginal gain in employability from a higher degree over that of a first degree is small (Marshall, 1966). The marginal gain takes no account of other potential returns to society from the more advanced study. Low completion rates at postgraduate level are also relevant. Educational stock cannot be changed quickly for the more advanced type of education. More important is the argument provided by Marshall which suggests that a marginal productivity view is inadequate for the returns provided by basic research. 'The economic value of one great industrial genius is sufficient to cover the expenses of the education of a whole town', claims Marshall (p.179). The return from great inventions are not captured in the earnings of those responsible. The nature of the return from postgraduate education and from basic research are not accurately captured in money earnings measured at the individual level.

In the human capital approach, income after tax is taken as reward to the individual, income before tax is regarded as contribution to society. It is an approach which Marshall warns against, 'the wisdom of expanding public and private funds on education is not measured by its direct fruits alone' (Marshall, 1966, p. 179). Income is not always an adequate measure of a human being. There are particular problems in taking income tax payments as a measure of contribution to society. Investment in education is characterized by a

longer period of time than other types of investment. Equally, the returns from education are long-term and carry across generations. The returns to basic research are not necessarily captured by those directly involved. There are important gains and returns which are neither monetary nor quantifiable. A marginal productivity approach does not capture everything important. Reforms in education appear to be prompted by a philosophy which looks for immediate returns, for 'direct fruits' the results have not been impressive (Marshall, 1966).

An essential element of human capital theory is that individuals invest in themselves in the expectation that this will yield future returns. Decisions are analyzed along the lines of neoclassical (competitive) theory as if decisions are the result of calculating rate of return over the cost, comparing that return to return from other activities. Human capital theory seeks to explain education and training in much the same way as orthodox theory treats physical investment decisions. Links to consumer choice by individuals are assumed to be rational, with them acting in a fashion which is explicable in terms of a strict economic calculus.

Human capital theory measures the contribution of investment in education either with an increase in the marginal social returns to education or a decrease in its marginal cost. Many economists (including Kroch & Sjoblom, 1994) have attempted to contrast the human capital theory and the signaling theory. The difference between these two theories is that signaling theory alone incorporates the idea that employers pay a premium for education. The standard

procedure is to distinguish those situations where individuals would benefit from 'signaling' from those situations where there is no benefit and then to compare the rates of return to education of the two groupings. These attempts have been inconclusive for two reasons: the identification of the grouping relies on the intuition of the researcher and the data are narrower and idiosyncratic.

Kroch & Sjoblom (1994) compared the above theories of the value of education. The results gave support more to human capital theory of compensation than to the signaling theory. They found that when the level of schooling is dropped from the regression calculation then half of the effect is due to signaling and the other half to human capital. The most important conclusion, however, was the fact that the signal theory overall was rather weak compared to human capital theory.

Groot & Oosterbeek (1994) attempted to test human capital theory against screening or filter theory. Screening theory supports the view that education is not the cause of higher earnings and it does not increase people's productivity. What education does is to filter out those who are capable of higher productivity. According to this approach, education is a stimulation for the identification of good workers and thus provides a private service rather than a social one. This private service is very valuable to both employees and employers (Psacharopoulos, 1975). The main element of the paper was to split the number of *actual* years of schooling into *effective* years (the number of school grades an individual completed) and *inefficient* years

(e.g. years that were repeated). Groot & Oosterbeek applied this decomposition to the measurement of schooling and in order to distinguish between the two theories. Although the results strongly supported the human capital approach, the important finding was that the distinction between actual and effective years of schooling used in the equation was not statistically important.

Lang (1994) tested whether an individual's education provides employers with information about that individual's productivity and used the return to education as a guide to development policy. The estimation of the return to education not only reflects the effect of education on productivity but also the help it gives to the worker to be more productive with more abilities. He predicted that regardless of when the information available is not perfect, the return to education may be a bad or good measure of social return. However, the results did not support this prediction and the development of social policy remained unsolved and not clear.

Saint-Paul (1994) studied the relationship between labour markets (in the form of wage rigidity), unemployment and human capital incentive. The hypothesis was that an increase in wage rigidity leads to an increase in the proportion of skilled workers and unemployment of the unskilled, thus contributing to a relative rise in the return to education. The results were supportive of this model and they showed that if higher education generates skilled workers then this could be beneficial to economic growth.

To Marshall (1966) the return from education was complex, long term (inter generation) and not adequately captured by direct returns (earnings following from education). Moreover there are important divergences between the private and social returns from education and training. And there are particular problems of funding education and training which differentiate human capital from physical capital. Because the individual retains ownership of his or her own capital and cannot alienate it, then he or she cannot offer human capital as a collateral against a loan in the manner in which could one can offer financial or physical assets. The problems of funding education leads to the possibility of under investment in human capital, especially from poor families. This under-funding reinforces itself through generations and contributes to non-competing groups.

Studies come to the following conclusions about the rate of return in education (Psacharopoulos & Woodhall, 1986, and Psacharopoulos, 1973):

- the social rate of return is lower than that of the private;
- the rate of return is lower in developed countries than in less developed countries which performed better than developed in lower levels of education;
- both kinds of rate of return are lower for females than for males because women generally have a shorter working life;
- rates of returns also appear to be lower for racial minorities;

- an individual will gain more from education than will society;
- the contribution of education to economic growth tends to be highest in developing countries which focus their attention more on human than physical capital.

4.3 Cost of education

The term 'cost of education' is usually closely related to expenditure on education. Education for development has to take place over a long period which is based on the progress of science, the continuous rise in human knowledge and the technology of production. Technology creates difficulties in education since it may increase the demand for it, thus further increasing the necessary expenditure for education. Countries pay much attention to the cost of educational investment and attempt to reduce the unit costs (cost per pupil is the most appropriate measure for unit costs) by improving the efficiency of the schools. However, many economists have reached the conclusion that reducing educational expenditure would not necessarily reduce student or pupil achievement since the most important determinants of educational expenditure (teachers' salaries, pupil and teacher ratio) are statistically uncorrelated with pupil achievement (Taylor, 1994). Hanushek (1986) found that high-salary teachers are no more effective than low-salary teachers. He also found that whilst highly educated teachers are more effective than teachers with low education. Card & Krueger (1992) also estimated

the effects of school quality. Their findings were more or less the same as those of Hanushek. Advanced educated teachers earn higher economic returns than those with less education and those who are educated through a lower quality school system. However, pupils' achievement is not correlated with school quality. Despite their findings, Card & Krueger believe that labour market performance is at least a measure of the quality of the educational system and this is 'an answer' to those who support the view that educational investment does not automatically lead to benefits for the students. Decisions about expenditure in educational investment depend on the comparison of the balance between the economic benefits and the opportunity costs. 'Opportunity cost is not the monetary expenditure but all the sacrificed opportunities when scarce resources are invested in education' (Psacharopoulos & Woodhall, 1986, p.166). In order to make opportunity cost more quantifiable six dimensions are suggested by Leite, Lynch, Sheehan & Vaizey (1968):

- the question who pays for education families, students, any kind of scholarship or the government;
- the time dimension for the foregone opportunities;
- the knowledge and the uncertainty dimension;
- the constraints assumed;
- the scale units for the measuring of the income;
- the transferability potential.

Whether the benefits from education are monetary or not, the costs can be measured. The cost of education can be divided into social and private costs. Social cost is the cost to the economy and to society as a whole, whilst private is the cost of the individual which determines the private demand for education. Since in many countries education is usually financed from the public sector, the determinants of demand are more important than those of supply.

Two of the major influences on the demand for education (Todaro, 1994) are:

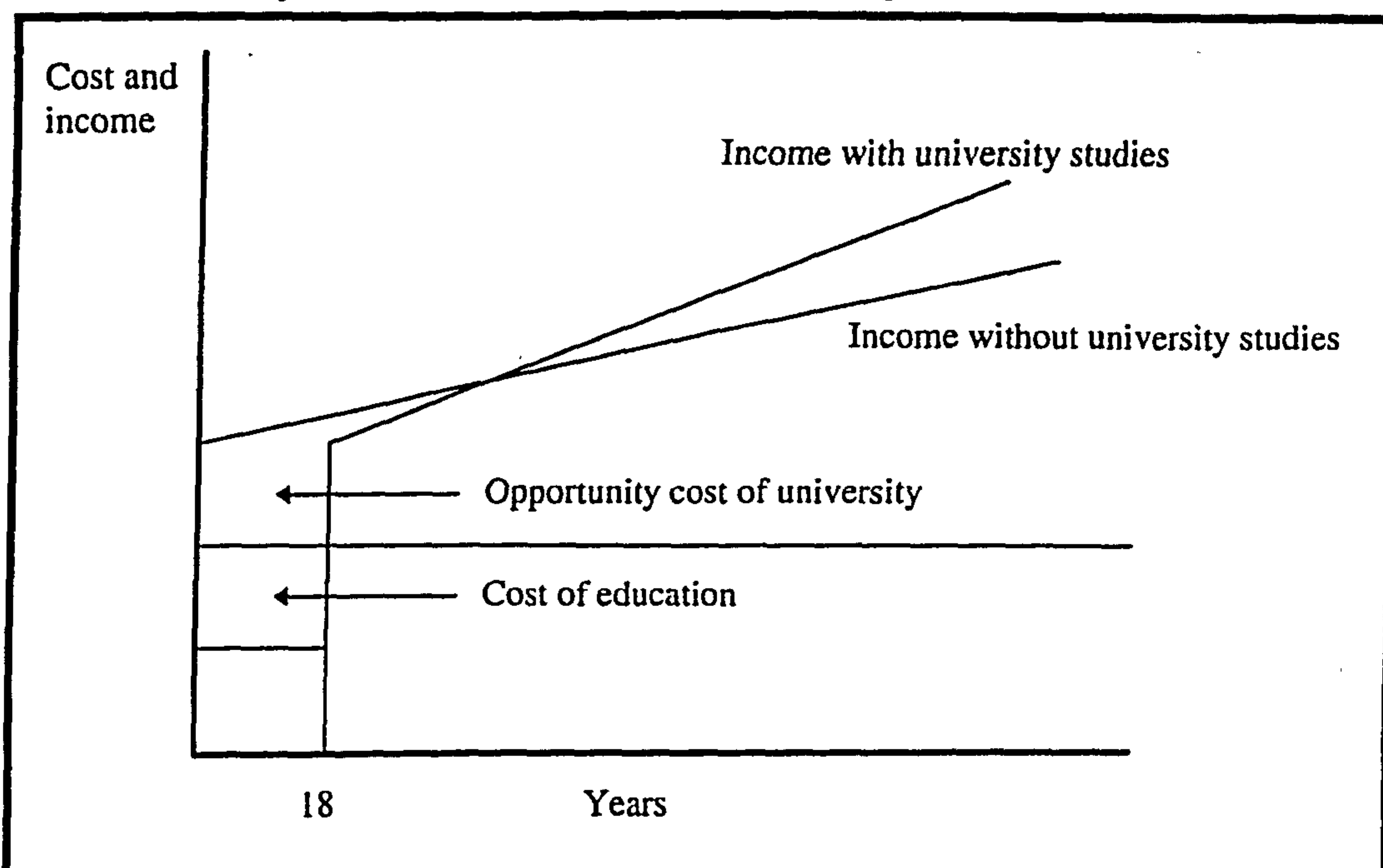
- the more educated require more high paid jobs in the sector employment (private rate of return);
- people must keep in mind the social costs (direct and indirect) .

High demand for education and training stems from high wage employment opportunities in the advanced technology market, because access to this kind of job is heavily determined by people's education. Many economists measure the social cost as the opportunity cost per pupil plus actual expenditure on education (Taylor, 1994). Total cost can be split into direct and indirect costs. Direct social cost is the cost of expenditure on education that includes teachers' salaries, buildings and equipment, books etc. Indirect social cost represents the foregone income of students which is the income that they would earn if they were working plus fees minus the average value of scholarships etc. (Woodhall, 1992). Social costs equal

private costs plus any measurable costs to society. For example, public school pupils do not pay tuition or for books, so their private cost of education is essentially the opportunity cost of their time. But the government still does pay the teachers and buy the books so the social cost of educational investment equals the private plus the government's expenditure on education (Taylor, 1994). However, Todaro (1994) believes that there is a widening gap between social and private cost due to the demand for higher education. There is an expansion in educational demand for higher education which require full social costs. So, more and more resources may be allocated to the expansion of higher education (in terms of social costs). The possible creation by the government of new jobs to absorb these highly educated people may lead to the lack of public financial resources. However, the diagram below shows that the return from investment in higher education is larger than without university studies (Figure 4.2). Higher education occupies a critical role in the improvement of society and economy. Countries which have given serious consideration to the provision of university opportunities have a competitive advantage. Growth through education can, however, be achieved only comparatively slowly; the increase in the numbers of skilled and capable manpower has to be regulated to avoid times of over or under supply.

Figure 4.2.

Figure 4.2 to show the additional opportunity cost of higher education and the delay in return from investment in higher education.



Source: Psacharopoulos, G. & Woodhall, M., Education for development: An analysis of investment choices, 1986, p.41.

Another distinction that has to be made concerning the cost of education is between the average cost and the marginal cost. Average cost is the money or the resources devoted to each student or pupil in the educational system whereas the marginal cost is the extra expenditure incurred when one additional pupil obtains one additional year of schooling. Marginal cost is very difficult to determine but it is strongly significant in economic terms since it indicates the consequences of educational increases. It cannot be measured because it is impossible to measure the income foregone for the all the pupils for two reasons:

- the return occurs in long period of time;
- the labour market is complex and differentiated. The disparity between marginal and average costs depends on the utilization of existing resources in the educational system (Psacharopoulos & Woodhall, 1986).

This brief analysis of some of the cost and benefits concepts show that there is no universal answer to the question 'What is the cost of education?'. It has several meanings and distinctions and the answer to the question depends critically on the assumptions that are made.

4.4 Summary

In this chapter we have presented a brief introduction to the concept of human capital and its contribution to the economic development of a country. Adam Smith and more recently Marshall have written about the economic contribution of human capital and educational investment. The greater demand for new technology and consequently for more skilled workers has led researchers to the creation of a new field in economics most often known as the economics of education. The economics of education is a very important component of the study of economic development. It includes a recognition of the motivation and desire for education and their effect on economic development.

The big movement in 1960's was the change of emphasis from physical to human capital as the most important source of economic development. This change of perception was based on the realization that investment in human beings is the most valuable part of a country's capital. An essential characteristic of human capital theory is that investment in human beings will yield future returns. Physical capital can easily be substituted by other physical resources but ideas and attitudes once they are lost cannot be replaced. The main elements of modern human capital theory are:

- investment in human capital is equated to investment in physical capital;
- investment in human beings earns a return;
- the return must be sufficient to offset the cost of education and to offer cover and above that a return equal to other investment opportunities.

In order to bring about higher productivity and to meet increased social needs, most of countries have concentrated more of their resources on human development. Countries such as Thailand, Singapore and Taiwan have shown accelerated growth principally because they have promoted their educational investment. The expansion of formal schooling in many developing nations has improved productive work, has given preparation for adapting new technology and personal development (by improving the way of life)

and has thus led to national development. The quality of life for the general population (standard of living), productivity and flexibility, knowledge of new technology, income per capita are some of the measures used to assess the economic development of a country.

Given that educational systems in all parts of the world are large and both reflect and reproduce the economic and social structures of the society, educational policies and development must need to be effective. In order to be effective, educational plans should take account of the following recommendations for change (Todaro, 1994, p.387):

- 'modifying the economic and social signals and incentives outside the educational system that largely determine the magnitude, structure and orientation of the aggregate private demand for education and consequently the political response in the form of the public supply of school places;
- modifying the internal effectiveness and equity of educational systems through appropriate changes in course content (especially in rural areas), structures of public versus private financing, methods of selection and promotion, and procedures for occupational certification by educational level'.

Since education requires a long period of time, it also require a larger share in investment outlays. Expenditure on education is a long term investment and the greater consumer of public revenue, so,

decisions on educational investment are very critical. If resources are invested in education, this means that they are no longer available for other public services such as health. Since resources are limited, the government should evaluate educational investment by including cost-benefit and cost effectiveness analysis. The decisions about expenditure of educational investment depend on the determination of education costs. The following chapters in this thesis (chapter five and six) are an extension of the present, which demonstrates general factors that affect education expenditure. Chapter five establishes the validity of the empirical approach and an extensive analysis of literature describing empirical studies on school spending which predict the sort of approach that can be applied to Greek primary education. Chapter six will show the main predictors sensitive in many ways in order to find the variables that maximise the resources available and to raise educational standards.

CHAPTER FIVE

METHODOLOGY AND EMPIRICAL LITERATURE

5.1 Model specification

Most decisions about the level of public school expenditure in each prefecture are made by the central Greek government which provides on average about 80% of educational finance. The final decision about how much money to spend per pupil in primary education at local level is made by the central government. Public provision of schooling comprises a large portion of the government's budget allocation and consumes substantial resources. Centralised provision of primary education spending has some important implications since it results in the growth of greater bureaucracy and administrative expense and consequently cannot be cost-effective. Martin & Wagner (1978) argued that centralised decision making on school spending is not desirable since it supports the inefficient provision of public services. Public elementary school spending in Greece tends to be inefficiently organised because the State government has a dominant role in financing elementary education at local level.

There is no empirical research concerning the determinants of the cost of educational expenditure in Greece. Because educational expenditure is financed by the central government, the determination of the cost factors among the prefectures is complicated. Existing

explanations for public provision of schooling are scarce and there are still some doubts about the effectiveness of current educational policy. In general, whenever central government's role is increased or there is centralisation of service provision, the result is low efficiency or high cost (Burnell, 1991). Consequently, studies of government actions with respect to the exercise of educational policy have gained momentum and become an important focus of economic research.

Because literature on Greek educational spending does not contain substantial detailed discussion of the determining factors, the thesis presents an analysis of the cost expenditure per pupil in primary education and the factors determining how much it costs the government to finance primary schooling in each prefecture. The relationship between government structure and public spending is a complex one, hence the analysis has been done by developing an econometric model to identify the relationship. In deciding what to provide, government decision-makers should consider the costs of providing it. For sake of convenience, the statistical packet that has been used is Microfit¹. This type of research has not been limited to the academic world but has been extended into the operational field. The main purpose is to apply a regression equation to this problem in Greece for the period 1985-1994. After the analytical discussion, the objective will be to provide proposals for Greece in order to develop some hypotheses about the attributes of successful educational policy.

¹ MH Pesaran and B Pesaran, Working with Microfit 4.0: Interactive Econometric Analysis, Oxford University Press, 1997.

The estimated effects of variables on current expenditure per pupil, are based on data for each prefecture for the school years 1985-1994 (see the original data for each variable at the end of the thesis in Appendix Eight) in order to include as wide an information base as possible. Since there are 52 prefectures, each with ten years observations, the kind of data we used is panel². The purpose of this panel data is to conduct experiments involving all the prefectures for as many years as reliable data are available. This panel data is the first employed in empirical work in education, is detailed and arguably free from serious measurement error because of the smoothing effects of using both year and district data. Standard econometric practice (regression analysis) handles the relationship between the cost factors, the interrelationships between the cost factors and the current expenditure per pupil.

To address the issue of cost expenditure per pupil three equations are computed showing the relationship between current expenditure per pupil and seven cost determinants. These equations, known as regression equations or regression functions are kept as simple as possible. A common chronological point of 1985 is taken in order to express all the economic variables in constant prices. For sake of convenience, Ordinary Least Squares (OLS) are used as the estimation method.³ In our regression functions, the dependent

² Suppose there are N groups each with T time observations, then the data is called panel.

³ The OLS method is based on minimising the average square of the distance of the value of each variable from the best fit value. The square has to be used because the 'mean' distance is zero; squaring converts all values to positive ones.

variable was the current expenditure per pupil: this was calculated in terms of the following variables, the percentage of pupils attending public schools, population density, unemployment, percentage of public budget to primary education, teacher per pupil ratio, average size of school ratio and GDP / population of each prefecture as an indicator of median family income.

The percentage of pupils attending public schools is used to measure the strength of demand for public elementary education and to test the ability of the Greek government to finance education. Population density has some important policy implications on the consolidation of school expenditure since distribution of population especially in rural areas increase the cost of school spending as schools are smaller and arguably less efficient in consequence. The teacher / pupil ratio and the average size of primary schools are included as relevant cost determinants and GDP (Gross domestic product) / population is included as an indicator of mean family income at prefecture level. Finally, the percentage of public budget to primary education attempts to measure the resources available from central funds for the financing of elementary education.

Sometimes, the independent variables on the right hand side of the equation in the OLS may create some estimation problems because they may include the effects of government action or interrelations between them. However, these problems can be identified by statistical tests and can be offset by corrections. In our case, teacher per pupil ratio had a high correlation with the dependent

variable (expenditure per pupil) and also had some interrelations with the average size of schools. To examine the effects of teacher / pupil ratio, three other regression functions were created omitting the variable of teacher per pupil ratio so as to examine effects of this determinant on the rest of the cost factors.

The following regression equation is specified and will be applied to produce the three regression functions.

$$CEPR = f(PPPS, PD, U, PEBP, TPR, ASSR, GDPPR)^4$$

where

CEPR = current expenditure per pupil (dependent variable);

PPPS = percentage of pupils attending public schools;

PD = population density;

U = unemployment;

PEBP = percentage from the public budget to primary education;

TPR = teacher / pupil;

ASSR = average size of primary school;

GDPPR = GDP / population.

Function one (pooled) effectively ignored the cross sectional and time series dimensions of the dataset. Function two (time-series) enabled the identification separately of the movements over the years for each prefecture. Finally, function three (cross-section) eliminated the time variations and helped to identify variations across the prefectures. In the last function (cross-section) only six independent variables are used since the centrally allocated percentage from the public budget to primary education was constant across prefectures.

⁴ The constant term is excluded because the means of variables expressed in this form of data are always zero.

Having explained the methodology of our educational regression functions and before describing in detail the sources and the quality of the data we used, it is necessary to present first in the next section some of the empirical research on school expenditure that writers in the USA have published. Their aim, like that of the present author, is one of contributing to more effective educational policy.

5.2 Empirical literature on reaction functions in educational contexts

Several different types of reaction function have been employed by a large number of authors mostly in economic fields. The first approach was made by Keynesian economists who attempted to provide a theoretical justification for discretionary economic policy (Joyce, 1986). After this attempt several economists built their models around the original framework. Klein & Goldberger (1947) were the first to built an econometric model for the practical justification of economic policies (Klein & Goldberger, 1959). The main purpose of this section is to show that a reaction function can be fitted to education econometric data and to present the empirical literature on public expenditure decisions.

This section provides a review of the theoretical framework on the government expenditure determination reaction function. The specification and estimation of school spending of different nations is surveyed. It also contains an overview of important econometric

studies of local school expenditure determination. Educational regression equations are important because they analyse the links between government expenditure determination (local or central) and the variables that affect the cost of these expenditures. Understanding these links is important since it is essential for the effective pursuit of educational policy.

Although the existing literature is very limited on Greek education spending, there are studies on primary educational expenditure that provide examples of different approaches to the determination of government expenditure⁵. All these (mostly American) studies follow a common econometric procedure (based on regression analysis) to analyse public expenditure decisions.

A large number of econometric studies deal with the determination of the US public school expenditure. Broadly speaking, most of the studies develop a model in order to determine what factors appear to influence local government spending. Burnell (1991) created a regression model based on school district data from the 1977 Census of Governments for 280 Standard Metropolitan Statistical Areas (SMSA) across the US in order to analyse the cost factors that

⁵ The literature on Greek primary education spending is very limited. Karagiannopoulos E. (1990), for example, his initial intention was to serve as a reliable basis of the education expenditure data. However, it focuses mainly on the recording of the expenses made during the 1970-89 period, without providing an in-depth analysis which would ultimately lead to scientifically official deductions. For further details about Karagiannopoulos survey see Karagiannopoulos E., Expenses Cost and Finance of public education 1970-89. Trends-Development, May 1990. The majority of the Greek studies deal with public spending in higher education. For further details on this topic see Psacharopoulos G. & Kazamias A., Education and Development in Greece: A social and economic study of university education, Athens, 1985, Psacharopoulos G. & Lambropoulos Har., Socioeconomic Dimensions of University Education, Institute of Social research, 77/1990, Karmas K., The Greek education

affected local government school spending at that time. She tested average per pupil expenditure on education in terms of the number of school districts in the county, average teacher salary, the average pupil-teacher ratio, the level of per pupil aid for education from the State government, the median family income, the percentage of pupils enrolled in public school, the median level of education of the adult population and the tax share of the median voter.

The results of Burnell's regression model indicated a relationship between centralisation and spending. This is the opposite to what bureaucratic theory predicted. Bureaucratic theory is the approach which analyses the effect of government structure on school spending. Proponents of the bureaucracy theory argued that when local government competition is increased (decentralisation) it results in more efficient provision of public services. Burnell's results also suggest that when other factors such as quality, cost of provision and demand considerations remain constant, a fragmented system increased competition and resulted in greater expenditure. The latter result may have important implications for education provision in urban areas and as Burnell suggested, may need further investigation including the measurement of competition and analysis of district structure.

Megdal (1983) developed another regression model which analysed the importance of the budget referendum in the context of

in the horizon of 2000, KEPE, Athens, 1995 and Biniaris Ath., Development of the Technical and Professional Education, Doctoral thesis, University of Athens, 1995.

local public expenditure decisions. The dependent variable of this model was the total expenditure per residential pupil in terms of categorical grants per resident pupil, proportional enrolment increase, equalised residential value, median income per family, public school pupils as a percentage of the school age population, percentage of residences owner occupied, percentage of the population with income less than the poverty level, population density, tax price and non-matching state block grants (a fixed amount of money given by the district government regardless of the needs of the district) per resident pupil. She also used a variable with values 1 and 2 to denote whether: an appointed body approved the budget (Type 1) or whether the budget was approved directly by the voters (Type 2). In other words, she attempted to examine whether the voters or the district government officers exercised control over the annual school expenditure.

The sample of this model consisted of 177 New Jersey school districts operating complete kindergarten through twelfth grade programmes. Data were collected for the 1970-71 school year, when 37 of the sample districts were of Type 1 and the rest of Type 2. The regression results supported the hypothesis that expenditure behaviour does vary with the method of budget determination but the researcher was unable to conclude that there is a systematic relationship between expenditure determination and the budgetary process. In other words the determination of the school budget spending depends neither on the voters nor on the district government

to a measurable degree. In Megdal's view the results might be oversimplified since she used only one dummy variable to represent the institutional differences which means she was imposing a high degree of structural homogeneity.

Bradbury (1994) also working in the USA investigated the connection between school expenditure and government school aid (the basic provision of operating costs). In the USA school finance is not centrally controlled, the government gives the basic grant but there is no attempt to ensure equality of expenditure across districts. School spending can vary between rich and poor districts according to voters' ability and willingness to pay for education. Needs too vary between districts; in one district the children may have more educational needs than in another and so the district needs more funds to spend per pupil. Thus, many States use local forces to attempt to raise the level of spending in needy districts.

The major aim of Bradbury's research was to identify any local disparities in public school spending and to study the means used to obtain more equal spending in rich and poor districts. She used regression models in order to analyse the factors that influence inter-district variations in per pupil school expenditure in two States, Massachusetts and Rhode Island. According to Bradbury these States are two typical but contrasting representatives of school aid distribution. The models were based on cross section data for school districts in Massachusetts and pooled data of Rhode Island for the school year 1990-91. In Massachusetts the area of the State is

divided among 351 cities and towns whereas Rhode Island consists of 39 cities and towns.

The results from these models showed that rich school districts have higher per pupil expenditure than poorer districts for a variety of reasons. The most important reason is that rich districts have more available resources to finance school expenditure. One example of spending disparities between districts is that in Rhode Island the per pupil spending is higher than in relatively poor Massachusetts. Although for the school year 1990-91 State government provided more funds to poor districts than to rich, the decision did not fully offset the local spending disparities. School aid did not eliminate spending disparities although results showed that through the school aid formula disparities in school spending were reduced. When the income levels and the resources available for spending are not equal in the districts then centrally provided school aid can be expensive means of reducing between school disparities.

Couch & Williams (1993) used a regression model to test the relationship between private school enrolments and public school performance. The study examined the market forces acting in the public education, in other words, competition in the public schools. Their incentive was to provide alternative educational choices in order to help the public schools to provide better quality education and to do a better job of educating their students. The model was based on data from North Carolina's 100 counties for 1985-86. They created two regression equations: the first investigated the variations in private

school attendance between counties and the second one attempted to test if enrolment in private education had any impact on public educational expenditure. The findings of these models suggest that public educational provision per pupil is higher in the counties with large enrolment of pupils in the private education. According to the model this means that wherever market forces (competition between public and private schools) are high, public provision on primary education is higher. According to the researchers this result indicates that competition improves the quality of the public schools.

Lovell (1978) used four regression equations in order to examine educational expenditure per pupil using different combinations of demographic and income data for Connecticut collected in the 1970 Census. Since in Connecticut educational expenditure is financed by taxing property rather than income, the important thing about these equations is that all suggested median income was a more important variable than the property tax base⁶ in predicting educational expenditure. However, the income measures used were possibly insufficient since the data provided by the Census excluded the rental income of owner occupied housing and the income as capital gain and as the result the property tax base was also inadequate because it was not a full wealth measure. The regression results showed that the voter with median income dominates expenditure decisions and that when income is positively skewed in

⁶ Property tax base is a tax ratio that government use, based on the national value of properties owned by individuals (i.e. houses, cars, etc.), in order to collect the money.

the community, educational expenditure per pupil is increased. Family size was insignificant and indicated that when there is trend for small families, it will induce a modest increase in per pupil spending but not by a sufficient amount to keep total educational expenditure from declining. Moreover, all voters possess the same taste for education and it was not clear if demographic factors influenced the expenditure per pupil. The important conclusion of this paper is that tax-level of the median voter is an important variable for public school expenditure determination, with richer voters being prepared to spend more.

Kenny & Schmidt (1994) focused on the relationship between the cost savings through economies of scale and a diverse population's demand for choice in public schooling. Kenny & Schmidt's dependent variable was the number of school districts in the State, based on census data for 1950, 1960, 1970 and 1980, matched with school district data for 1949-50, 1960-61, 1970-71 and 1980-81. The sample for this model consisted of those States that did not have any restrictions on the size of school districts and resulted in 172 observations.

The explanatory power of the model was 80%, relatively high for this type of work. The results indicated that the decline in the number of school districts was linked to the decrease of the farm population, an increase in population density, growing public sector unionisation and an increased role of the State in school funding. Additional transportation costs was another reason for a decline in the number of school districts. The regression results also suggested that the

growing involvement of the State in funding education not only reduced the variation between schools but also decreased the desired levels of spending since it resulted in reductions in the number of school districts through State-wide and county-wide restrictions.

West & Palsson (1982) attempted to specify and explain the parental choice of public school characteristics in order to obtain measures and precise reasons why teachers in some schools are more effective than others. It is an approach that focused on the differences in quality between schools and teachers. The dependent variable of this model is the total pupil enrolment including private and public. The model is based on cross-sectional data for fifty States in two years in the 1970's. The Catholic proportion of the population, pupil teacher ratio, per capita income and the number and length of strikes seemed to be significant correlates of parental choice. Another important finding of this model was that of significant private school price elasticity meaning that public school users react positively to subsidised private schooling (reduced tuition). Table 5.1 below summarises all the above econometric analyses on public expenditure determination.

Table 5.1

Table 5.1 shows a number of econometric analyses on public school expenditure according the year of publication and the author.

Year of publication/author	Country	Dependent variable	Sample period
Lovell (1978)	US	educational expenditure per pupil	1970 Census
West & Palsson (1982)	US	total public and private pupil enrolment	two years in the 1970's
Megdal (1983)	US	total current expenditure less tuition revenue per resident pupil	1970-71, 1974-75 and 1977-78 school years
Burnell (1991)	US	per pupil expenditure on education for school districts	1977 Census of Government
Cough & Williams (1993)	US	percentage school age children enrolled in private schools by county	school year 1985-1986
Bradbury (1994)	US	per pupil school expenditure	1990-91 school year
Kenny & Schmidt (1994)	US	the number of school district in the state	1949-50, 1960-61, 1970-71 and 1980-81 school years

Table 5.1 shows some of the wide range of studies that have been carried out in the USA over the past fifteen years or so. The success of these functions in providing significant correlates for different dependent variables gives confidence that the same approach can be applied to predict educational expenditure in Greek prefectures.

5.3 Sources and quality of the data

In general, recent Greek data are adequate for work on primary educational expenditure. However, because in Greece the central government is predominant in allocating education funds (local school districts cannot make the final decision about how much money to spend per pupil), there were many points where the necessary data for each prefecture did not exist or the available data were of limited usefulness. Therefore the data were not sufficiently rich to allow us to examine many interesting issues. These 'gaps' of data in our research have partly determined the interpretation of the results.

In the light of the possible benefits to be obtained from a model of expenditure, it was decided to proceed with the limited data available. Because of the limited reference of the data, it was decided to use a simple model structure. This has helped to make the working of the model more transparent and the result easy to evaluate.

The variables involved in this particular study was eight including the dependent variable. The variables over the data sources for this study are as follows:

CEPR = current expenditure per pupil (dependent variable). The current expenditure consists of the educational staff salaries, the administrative staff salaries and other operational expenditure caused by the salaries of the educational staff. The use of data on total expenses was judged unsatisfactory since the capital expenditure is

influenced by the accident of district indebtedness, construction, etc. The data were taken from the Ministry of Economic Affairs, State Budget, Athens 1996;

PPPS = percentage of pupils attending public schools. The number of State school pupils divided by the number of States plus the pupils attending private primary schools. The data were taken from the department for Statistics publications, Ministry of Education and Religion Affairs, Athens 1996;

PD = population density. These data were obtained from the Ministry of Internal Affairs, Athens 1996;

U = unemployment. This variable is expressed as a percentage of the labour force from the Ministry of Economic Affairs, Athens 1996;

PEBP = percentage from the public budget to primary education. The source for these data is the Ministry of Economic Affairs, State Budget, Athens 1996;

TPR = number of teachers divided by the number of pupils. Both figures are taken from the Department of Statistical Publications, Ministry of Education and Religious Affairs, Athens 1996;

ASSR = average size of school units. Source as TPR;

GDPPR = Gross domestic product divided by the population of each prefecture. The GDP is for each prefecture and is used as measure of a mean family income. Source as CEPR.

Table 5.1 is a significant indicator which confirms that the same approach of the econometric studies on public expenditure can also be applied in Greek educational public expenditure. Although it is obvious from table 5.1 that most of the econometric studies used as a sample period only one year, this thesis used a relatively larger sample 52 prefectures each by 10 school years to estimate the factors that determine school expenditure per pupil. Given that the present research is of the same magnitude and importance with the studies from table 5.1 and can provide useful information on predictors of school expenditure per pupil.

CHAPTER SIX

ANALYSIS AND DISCUSSION OF EMPIRICAL DATA

6.1 Estimation procedure and Summary statistics

As discussed in detail in Chapter Five, the estimation method of analysing the data consists in brief of estimating the parameters in the following regression equations:

1. Pooled model:

$$CEPR = \alpha_1 PPPS + \alpha_2 PD + \alpha_3 U + \alpha_4 PEBP + \alpha_5 TPR + \alpha_6 ASSR + \alpha_7 GDPPR + u^1$$

The pooled model is based on using the data for each year and for each prefecture as separate 'events'. Thus as this analysis is based on data for 52 prefectures and 10 years, it uses the observations as representing 520 separate cases.

2. Time-series model:

$$CEPR = \beta_1 PPPS + \beta_2 PD + \beta_3 U + \beta_4 PEBP + \beta_5 TPR + \beta_6 ASSR + \beta_7 GDPPR + u$$

The time series model is estimated using data from time periods for each prefecture in order to identify any movements at those particular periods.

3. Cross section:

$$CEPR = \gamma_1 PPPS + \gamma_2 PD + \gamma_3 U + \gamma_4 TPR + \gamma_5 ASSR + \gamma_6 GDPPR + u$$

The approach to obtaining the cross-sectional results is based on large numbers of groups. This kind of approach enable us to present the cross classification of these groupings.

The parameters in these equations are estimated using panel data that comprise N cross sectional groups formed from the 52 prefectures each with time series observations. If the models are to be useful estimates for the current cost of primary educational expenditure, then it is extremely important that the data are the most recent ones. As will be shown, the recent Greek data used for the study of primary educational expenditure proved adequate for the econometric analyses used here. However, because in Greece the central government is predominant in allocating education funds, there were some points where the necessary data for each prefecture did not exist or the available data were of limited usefulness. These 'gaps' in the data used in the study have partly determined the depth of the analyses and the interpretation of the results. The essential task, therefore, was to apply the models to a particular available set of data in order to establish the required initial values of the coefficients. An effort has been made in this research to show which are the most significant cost factors of the variables available for primary educational expenditure per pupil in Greece.

The data that have been used for each model have been transformed (to have mean of zero and a standard deviation of 1) for statistical reasons. Table 6.1 presents a list of variables used, their symbols and their expected signs in the regression equations.

¹ error terms (u) = unexplained part of CEPR

Table 6.1

Table 6.1 shows the list of variables appearing in the three regression expenditure models with their symbols and expected signs.

Variables	Symbol	Expected sign of coefficients
Dependent variable	CEPR	
Independent variables		
Percentage of public pupils enrolled in public primary schools	PPPS	>0
Population density	PD	<0
Unemployment	U	<0
Percentage of expenses from budget in primary education	PEBP	>0
Teachers / pupils ratio	TPR	>0
School / pupils ratio (average size of school)	ASSR	>0
GDP / population ratio	GDPPR	>0

Sign = Direction of the correlation, positive or negative.

Key summary statistics appear in Table 6.2 where we decompose the variance of each original (not the transformed) variable into its between groups (cross-section) and its within groups (time-series) variation. This decomposition of the variance is helpful for the interpretation of the results.

Table 6.2

Table 6.2 shows the variation of the coefficients between and within prefectures.

	Between prefectures variance (cross-sectional)	Within prefectures variance (time-series)
Percentage of pupils in public schools	5398.476	54251.545
Population density	4422136	4.431
Unemployment	204.137	2077.423
Percentage of expenses from the budget in primary education	0	64.48
Teachers /pupil ratio	0.002	0.052
Average size of state schools	71864.88	746933.11
GDP / population ratio	2.968	32.596

Population density figures between prefectures show significant variance whereas the time variation of the distribution within prefectures is considerably smaller. Unemployment appears to show large differences within prefectures (that is) with time, although between prefectures there are no great differences. Similarly, the variance of educational spending coming from central government within each prefecture is considerably larger than the variance between prefectures which is zero as a consequence of central provision of school funds. The variance decomposition of the average size of schools shows a big difference within each prefecture while between them it is much smaller. The between and within variances of the above variables are not of the same magnitude e.g. within prefectures the variance of the size of school is considerably larger than the within prefectures variance of population density. In general, this decomposition shows that much variation in the dependent variable is due to time-series dimension and much less to the cross sectional dimension of the dataset.

Considering the analysis of the data, an initial comment about the theoretical basis of the expected relationship between the cost factors and the public prefectures' yearly expenditure on primary education per pupil is worthwhile. Unemployment (U) is expected to have a negative relationship to expenditure per pupil. This is because if the government wants to achieve a reduction in the unemployment level, we suppose it will spend more on adult training and social programmes and probably as a result less money will be spent on

schools. One may also expect to find a negative relationship between spending per pupil and population density (*PD*). Smaller population density provokes an increase in school spending since it is more expensive to educate pupils in areas of dispersed population. If this is the case, the population density of the prefecture affects the cost per pupil. A similar negative relationship between school expenditure and the average size of schools (pupils / number of State schools ratio, *ASSR*) is also expected. This variable is intended to measure the significance of economies of scale in the provision of primary education. Large schools should indicate economies of scale in the sense that small schools need more money per pupil in order to function at the same level. The quality of schools may be improved by merging small school units. Large size schools are expected to be more efficient and to reduce interprefecture spending disparities. If economies of scale are significant in schools then *ASSR* is expected to have a negative relationship with the dependent variable *CEPR*.

The teacher / pupil ratio (*TPR*) is expected to have a positive relationship to per pupil expenditure. A larger *TPR* implies smaller classes and thus higher per pupil expenditure. Public funds for elementary education from the public budget (*PEBP*) that are available to support local schools are used to measure the ability to finance primary education. Because *PEBP* indicates the resources available to provide primary education, it is expected to have a positive relationship with *CEPR* since a greater percentage from the public budget will raise the revenue available for school spending. It is also

expected that this variable (which is the same for all the prefectures) will be highly correlated to the dependent variable since it represents almost the same quantity, the Government's funding being the major source of schools' finances. The same positive sign for the *GDP* per head of population is expected because theoretically richer prefectures may spend more on schools than poorer ones. The ratio *GDP* / population is an indicator of median family income of each prefecture. There are two reasons why this income variable may increase the expenditure per pupil:

- it confirms that resources for education are available;
- because education is a desirable commodity, demand for it will increase as income increases.

The percentage of pupils attending State schools (*PPPS*) is intended to measure the strength of the demand for public primary education. Since, in Greece, the revenue for the public elementary education comes from the central government and is on a 'by prefecture' basis, the variable is expected to have a negative effect on per pupil expenditure. Under fixed budget conditions, the higher the number of pupils who attend State schools, the lower is the average expenditure per pupil.

6.2 Econometric Tests

6.2.1 Test for multicollinearity

When panel data are used in regression models, there is a possibility that a serious problem of multicollinearity may exist. The most common cause of multicollinearity is when two or more variables are very closely correlated with each other. When the explanatory variables are highly correlated, the estimated coefficients of at least one of the variables may be only poorly defined. It becomes difficult to offset the separate effects of each of the explanatory variables and so one cannot be confident that the estimated values of coefficients are close to the true values. One common way to diagnose if multicollinearity is present is by inspecting the correlation coefficients between all pairs of explanatory variables. If any pairs of correlation coefficients are numerically above *0.95* it suggests that a serious multicollinearity problem exists. The present variables have all been tested for multicollinearity and the estimated correlation matrix, for the three models, is presented in Tables 6.3, 6.4 and 6.5.

Table 6.3

Table 6.3 shows the correlation of the variables for the pooled model.

	PPPS	PD	U	PEBP	CEPR	TPR	ASSR	GDPPR
PPPS	1.00	0.14	-0.01	0.10	-0.10	-0.10	0.12	-0.24
PD	0.14	1.00	0.03	0.05	-0.04	-0.05	0.31	-0.02
U	-0.01	0.03	1.00	-0.25	0.34	0.31	-0.12	0.04
PEBP	0.10	0.05	-0.25	1.00	-0.65	-0.83	0.02	-0.59
CEPR	-0.10	-0.04	0.34	-0.65	1.00	0.85	-0.20	0.50
TPR	-0.10	-0.05	0.31	-0.83	0.85	1.00	-0.18	0.54
ASSR	0.12	0.31	-0.12	0.02	-0.20	-0.18	1.00	0.01
GDPPR	-0.24	-0.02	0.04	-0.59	0.50	0.54	0.01	1.00

Table 6.4²

Table 6.4 shows the correlation of the variables for the time-series model.

	PPPS	PD	U	PEBP	CEPR	TPR	ASSR	GDPPR
PPPS	1.00	-0.13	0.11	0.007	-0.03	0.01	-0.13	-0.005
PD	-0.13	1.00	0.01	0.002	-0.17	-0.16	0.66	-0.12
U	0.11	0.01	1.00	-0.03	0.18	0.20	-0.007	-0.06
PEBP	0.007	0.002	-0.03	1.00	-0.48	-0.64	0.004	-0.17
CEPR	-0.03	-0.17	0.18	-0.48	1.00	0.89	-0.46	-0.13
TPR	0.01	-0.16	0.20	-0.64	0.89	1.00	-0.46	-0.10
ASSR	-0.131	0.665	-0.007	0.0049	-0.467	-0.469	1.00	0.290
GDPPR	-0.005	-0.12	-0.06	-0.17	-0.13	-0.10	0.29	1.00

² At 5% significant level the critical value for the probability is 0.27, meaning that any value above 0.27 is significant (for $p < 0.05$, $r \geq 0.27$).

Table 6.5

Table 6.5 shows the correlation of the variables for the cross section model.

	PPPS	PD	U	PEBP	CEPR	TPR	ASSR	GDPPR
PPPS	1.00	-0.13	0.11	0	-0.03	0.02	-0.13	-0.57
PD	-0.13	1.00	0.01	0	-0.25	-0.25	0.67	-0.13
U	0.11	0.01	1.00	0	0.22	0.26	-0.004	-0.06
PEBP	0	0	0	0	0	0	0	0
CEPR	-0.03	-0.25	0.22	0	1.00	0.95	-0.66	-0.38
TPR	0.02	-0.25	0.26	0	0.94	1.00	-0.69	-0.36
ASSR	-0.13	0.67	-0.004	0	-0.66	-0.69	1.00	0.30
GDPPR	-0.57	-0.13	-0.06	0	-0.38	-0.36	0.30	1.00

It is clear that the results are unexceptional, thus the null hypothesis of no multicollinearity problem can be accepted for the three regression models. The tables show that most of the correlations between pairs of independent variables are small and insignificant. It is concluded that multicollinearity is unlikely to be a problem. Unlike the other independent variables it is observed that *TPR* has a high correlation but less than 0.95 with the dependent variable *CEPR*. In the analyses that follow, further tests were made to try to remove the masking effect on the very high correlation of *TPR* with *CEPR* in the regression equations.

6.2.2 Test for Heteroscedasticity

In datasets that combine time-series and cross-section observations, heteroscedasticity is often the central concern. If the error terms (see 6.1) do not have a constant variance we say they are

heteroscedastic. Models produced from data with marked heteroscedasticity may be unreliable because the weighting of the observations is influenced by the variances; when the size of the variance is linked to the observations some observations play a disproportionate part in determining the final coefficients.

The present models have all been tested for heteroscedasticity by using a t-test of the differences of the means in the two groups. The critical value for the t-test is 3.84 at the 5% significance level. The rule is if the observed value (T), $T \leq 3.84$ then accept H_0 which means that the original model is free of heteroscedasticity at the chosen level of significance. If $T \geq 3.84$ then reject H_0 (null hypothesis) which means that the model suffers from heteroscedasticity. The results for the test (for the three models) are presented in Table 6.6.

Table 6.6

Table 6.6 shows the results of tests for heteroscedasticity for the pooled, time-series and cross-section models.

Models	Significance of t-value
Model 1 (pooled)	NS
Model 2 (time-series)	NS
Model 3 (cross-section)	NS

The test indicated that there is unlikely to be a heteroscedasticity problem in any of the three regression equations.

6.3 Econometric specification and results

6.3.1 Pooled results model

This model uses the data as 520 separate cases thus ignoring the cross-sectional and time-series relationships within the dataset. For statistical purposes Table 6.7 gives the standard deviation for each of the transformed variables of the above equations.

Table 6.7

Table 6.7 shows the standard deviation for each of the variables of the pooled model including the dependent variable (*CEPR*).

Variables	St. Deviation
PPPS	0.716
PD	41.34
U	0.263
PEBP	0.352
CEPR	9536.8
TPR	0.007
ASSR	7.382
GDPPR	0.074

The estimated parameters showing cost factors of the pooled regression equation on expenditure per pupil are reported in Tables 6.8 and 6.9.

Table 6.8

Table 6.8 shows the results of the pooled model.

Regressors	Coefficients	St. Error	T-ratio	Significant
PPPS	27.90	305.77	0.091	NS
PD	-0.812	5.40	-0.150	NS
U	3600.7	848.21	4.245	S
PEBP	7115.3	1175.5	6.052	S
TPR	1208957	54144.8	22.328	S
ASSR	-26.361	31.7318	-0.830	NS
GDPPP	16142.0	3633	4.442	S

Table 6.9

Table 6.9 shows the explanatory power (R^2) of the pooled model and its residual sum of squares

R^2	R^2 adj.	Residual sum of squares
75.4%	75.1%	1.16

The overall explanatory power of the equations ($R^2=75.4\%$, see Table 6.9) is high for a pooled analysis. The result, shows $3/4$ (three quarters) of the spending variance is explained. The missing 25% of the variance indicates that although we have included some important cost factors which determine school expenditure per pupil, it is necessary to include more variables to obtain a better estimate of expenditure. The cost factors included in the equation do not all show the expected relationship direction with per pupil school expenditure.

Notice in Table 6.8 that the *PPPS* variable has no significant effect on per pupil expenditure. The population density (*PD*) has a negative sign, which is expected according to the economic theory but since it is statistically insignificant, it is not an important determinant of school expenditure.

The variable of unemployment enters the equation with a positive sign, which means that it did not perform as expected. In contradiction to the speculated relationship on page 247-8, it seems that in times or areas of high unemployment, the government spends more (and not less) on primary school education. The positive sign found for this variable suggests there are other unknown dimensions to the cost factors associated with this variable.

The same argument has to be applied for the average size of schools (*ASSR*). Although it has the expected negative sign which may suggest that economies of scale are operative, there is no significant effect of this variable on school spending. Table 6.3 shows an insignificant correlation (i.e. one not significantly different from zero), hence the sign is not important. The insignificant relationship may suggest that the average size of school reflects teacher / pupil ratio and this remark is obvious from the correlation matrix (see Table 6.3) where the two variables are highly negatively correlated. So, in order to examine if the significance will change, the pooled model was re-estimated after dropping the variable teacher / pupil ratio (*TPR*) for the equation. Tables 6.10 and 6.11 present the results of the 'reduced' pooled model.

Table 6.10

Table 6.10 shows the regression results of the pooled model without the variable of teacher / pupil ratio (*TPR*).

Regressors	Coefficients	St. Error	T-ratio	Significant
PPPS	295.457	428.623	0.689	NS
PD	8.758	7.558	1.158	NS
U	6732.1	1173.5	5.7366	S
PEBP	-12740.1	1078.6	-11.812	S
ASSR	-237.096	42.500	-5.578	S
GDPPR	28505.2	5038.0	5.658	S

Table 6.11

Table 6.11 shows the explanatory power (R^2) of the pooled model without the variable (*TPR*) and its residual sum of squares.

R^2	R^2_{adj}	Residual Sum of Squares
51.5%	51.0%	2.29

Comparing the figures in Tables 6.8 and 6.10, it is clear that in the latter the sign of the size of schools (*ASSR*) variable is negative as predicted and the increase in significance indicates that, generally, large schools have smaller classes when *TPR* is the same.

In the analyses performed with this model both with and without the variable *TPR* in the equation, we observe that most of the coefficients are insignificant, i.e. the variables play no significant part in the regression equation predicting per pupil expenditure. The lack

of predictive power of this model is further shown by the small amount of the total variance (51% without *TPR*, contrast to the 75% with *TPR*) explained by the model. For these reasons the two other models were investigated to try to achieve a higher level of prediction.

6.3.2 The time series model

This model takes account of the time-relationships within the data. The descriptive statistics of the model coefficients appear in the following Table 6.12.

Table 6.12

Table 6.12 shows the standard deviation of the variables included in time-series model.

Variables	St. Deviation
PPPS	10.22
PD	923.99
U	2.00
PEBP	0.352
CEPR	12927.1
TPR	0.010
ASSR	37.93
GDPPR	0.250

The approach of this model has the advantage of using the effects on per pupil current expenditure of movements over time. The standard method of specifying the effects on per pupil expenditure

over time is used by first transforming variables to deviations from their 'mean over time'. 'Time-series' results are reported in Tables 6.13 and 6.14.

Table 6.13

Table 6.13 shows the regression results of the time-series model.

Variables	Estimated Coefficients	St. Error	T-ratio	Significant
PPPS	-55.456	24.307	-2.2814	S
PD	-0.487	0.417	-1.168	NS
U	-67.229	128.98	-0.521	NS
PEBP	5883.0	1058.5	5.557	S
TPR	1297376	44274.4	29.3031	S
ASSR	8.8879	12.6461	0.70282	NS
GDPPR	-873.9686	1163.6	-0.7511	NS

Table 6.14

Table 6.14 shows the explanatory power (R^2) of the time-series model and its Residual sum of squares.

R^2	R^2 adj	Residual sum of squares
81.8%	81.6%	1.57

In this model the variable used to measure the capacity of the central government to provide education (*PEBP*) is a significant determinant and has the expected positive coefficient. Current expenditure per pupil has the expected negative relationship with the percentage of pupils (*PPPS*) enrolled in the public school. The number of pupils enrolled in the public school is an important cost factor for

each prefecture. In those prefectures where fewer pupils attend public primary schools, the expenditure per pupil is larger as predicted.

Increase in population density makes it easier to take advantage of scale economies. Table 6.13 shows expenditure per pupil varies negatively with population density. Although the predicted negative sign is obtained, it is not a significant determinant cost factor for expenditure per pupil. This derives from the fact that, in Greece, educational finance allocations are centralised so it does not matter if a prefecture has population differences within its own department. In Greece, many dispersed prefectures contain several one-post or two-post schools, hence transportation costs are usually increased thus raising the per pupil expenditure. As in earlier sections, the same approach applies to Unemployment but again the variable is not a significant cost factor probably due to effects of centralisation.

One would expect *PEBP* to be closely associated with the *GDPPR* and the latter may also capture the effects on education spending. But the estimated negative and insignificant coefficient implies once again that each individual prefecture does not have any significant financial responsibility for spending on primary education, each receiving its finance from the central government.

The small and insignificant coefficient of *ASSR* indicates that economies of scale may be offset by some hidden, different parameters. In an earlier section (see Table 6.4) *ASSR* is negatively correlated with *TPR*. The high correlation of *TPR* with the dependent variable may be masking the effects of other variables. Thus, a time-

series analysis was done without *TPR* variable. The results are shown in Table 6.15.

Table 6.15

Table 6.15 shows the regression results of the time-series model without *TPR*.

Variable	Coefficient	St. Deviation	T-ratio	Significant
PPPS	-124.043	39.5244	-3.1384	S
PD	3.2912	0.648	5.0750	S
U	1100.2	200.4031	5.4901	S
PEBP	-17237.2	1152.8	-14.9524	S
ASSR	-216.5422	16.3963	-13.2068	S
GDPPR	325.8650	1899.6	0.17154	NS

Table 6.16

Table 6.16 shows the explanatory power (R^2) of the time-series model without *TPR* and its residual sum of squares.

R^2	R^2 adj	Residual sum of squares
51.5%	51.0%	4.20

As expected from the previous section and the correlation matrix, other variables now show significant predictive power. The total variance predicted by the reduced equation is only 51% compared with 82% for the full equation. The results from the 'reduced' regression model compared with the 'full' one, indicate that changes in teacher / pupil ratio is related to the average size of schools. The sign of the coefficient of the size variable is now

negative as expected and is highly significant. As for the pooled model analysis, a comparison of the values in Tables 6.13 and 6.15 shows that the effects of some variables are 'swamped' by the strong *TPR* correlation. In other words, some of the effect of the other variables is included with *TPR*.

6.3.3 The cross sectional model

In order to run the cross-sectional model, the standard approach is to create new variables which are the deviations of the 'means over time' for each cross-sectional group from the overall sample means. An initial comment is necessary: in Greece, educational funding is heavily centralised, meaning that the central government provides on average 80% of the financial resources and the regional and local (prefectures) authorities contribute less than 10%. For this reason the *PEBP* for each prefecture is constant so the variation among prefectures is zero and the value will not be included in the regression equation since it has zero variance. Descriptive statistics of the cross-section variables are presented in the Table 6.17.

Table 6.17

Table 6.17 shows the standard deviation of the variables included in the cross-section model.

Variables	St. Deviation
PPPS	10.19
PD	923.12
U	1.983
PEBP	0
CEPR	8727.0
TPR	0.0064
ASSR	37.21
GDPPR	0.239

The most important reason for using cross sectional data is to eliminate any purely time series variations from the data. Therefore, the model provides evidence of the extent to which we can identify the effects on per pupil expenditure in the cross-sectional (between the prefectures) dimension whilst taking advantage of measurement made over several years. The results of our cross-sectional regression model appear in Tables 6.18 and 6.19.

Table 6.18

Table 6.18 shows the regression results of the cross-section model.

Regressors	Coefficients	St. Error	T-ratio	Significant
PPPS	-50.052	11.043	-4.532	S
PD	-0.884	0.201	-4.394	S
U	-158.191	61.048	-2.591	S
TPR	1331819	28535.4	46.672	S
ASSR	24186	6.824	3.543	S
GDP	-2411.3	553.785	-4.354	S

Table 6.19

Table 6.19 shows the explanatory power (R^2) of the cross-section model and its residual sum of squares.

R^2	R^2 adj	Residual sum of squares
91.9%	91.8%	3.20

The results from the cross-sectional equation, compared with the pooled model, enable us to identify a higher proportion of per pupil expenditure. Population density (PD) is included as a control for financial differences in public schools between rural and urban areas. In this model PD obtains the expected negative sign and it is also a significant determinant of expenditure per pupil. We also see that a more sparsely populated prefecture is associated with higher per pupil expenditure. Prefectures with a smaller population density may have transportation costs because they must transport pupils to, for

example, to the nearest public post primary schools which are significantly distant, thus raising the cost of per pupil expenditure. One would expect this finding as a direct result of the small schools that prefectures of low *PD* usually have. Rural schools (one or two-post primary schools) have higher costs than larger schools because of the supplementary extra allowance paid to teachers for their administrative work e.g. 30,000 drs compared with 14,000 drs. However, we observe that as school size increases, expenditure per pupil also increases. The results indicate that size of schools is an important cost factor on per pupil expenditures but not in the simple manner expected.

The explanation that is the teacher / pupil ratio and *ASSR* are interrelated cost factors. The two variables have, in general, a negative correlation because only larger schools can have lower teacher / pupil ratios. The understanding of this relationship is very important for the interpretation of the results. The explanation lies in the inter-relationship of *ASSR* and *TPR*. This is shown in the results of an analysis carried out without the *TPR* variable (Table 6.20). Here *ASSR* has the anticipated strong negative relationship. This reduced model shows the expected relationship that larger schools are more efficient when *TPR* is not included. The results from the second equation are reported in Tables 6.20 and 6.21.

Table 6.20

Table 6.20 shows the regression results of the cross sectional model without teacher / pupil ratio (*TPR*).

Regressors	Coefficients	St. Error	T-ratio	Significant
PPPS	-120.477	25.012	-4.816	S
PD	2.827	0.422	6.684	S
U	1002.0	127.488	7.859	S
ASSR	-202.879	10.944	-18.537	S
GDP	-2146.6	1266.1	-1.695	NS

Table 6.21

Table 6.21 shows the explanatory power (R^2) of the cross section model without *TPR* and its residual sum of squares.

R^2	R^2 adj	Residual Sum of Squares
57.6%	57.2%	1.68

Comparing the results, it is clear that the sign in *ASSR* has changed (it is now the expected one) and we also have an increase in the level of significance. We might say that the latter model fits the assumption that bigger schools are more efficient and economies of scale are operative. It is however not acceptable to omit *TPR* from the full equation; without it the explained variance is of the order of 57% compared with 92% for the full (i.e. with *TPR*) equation.

The *PPPS* is a significant determinant per pupil expenditure, the negative coefficient is consistent with what has been predicted by

economic theory. It may suggest that in prefectures where large numbers of pupils are enrolled in public elementary schools, the per pupil expenditure is lower i.e. the same resource is showed by more pupils.

The variable of *GDPPR* obtains an unexpected negative sign, certainly opposite of what we had predicted, though consistent with the correlation matrix (Table 6.5). It appears in the full equation with *TPR* that *GDPPR* is acting as a suppressor variable, correcting for some unwanted effect of *TPR*. When *TPR* is excluded from the equations suppression is no longer required and *GDPPR* is no longer a significant variable. Youngman (1979, p.115) explains and illustrates the effect of a suppressor variable in multi-regression analysis.

Overall, the model is seem to have sizeable explanatory power because of the fact that most of the variables have a significant effect on per pupil expenditure. Population density and the average size of school are highly significant determinants of per pupil expenditure. In general, the variables used in this model have separated influences since there are small correlations between them.

6.4 Summary and comparison of results from the three models

In this chapter we applied a regression model in order to determine the importance of various cost factors associated with the expenditure per pupil in Greek primary education. The nature of the

data was the reason we obtained three regression models: pooled, time-series and cross-section. All the variables included in the three regression models have been transformed and the appropriate econometric tests have been carried out.

Briefly looking at our results we find that the time-series and the cross-section models shed more light on school spending per pupil than the pooled model. Since the pooled model results have reduced explanatory power and seem to contradict some of the conventional wisdom regarding effects of the independent variables, we will summarise only the time-series and cross-sectional results. The results from the time-series show that the resources available from the central government to finance schools is a significant determinant. The significant t-ratio of this particular variable is owing to the fact that local resources are not key determinants of per pupil expenditure. Cost expenditure per pupil within prefectures is determined by the number of pupils enrolled in State schools. Since the money for the educational system comes from the central government, population density and unemployment are not having significant effects on per pupil expenditure. The same can be applied to the *GDP* per head of the prefecture's population. Since local authorities do not have financial responsibilities, the *GDPPR* gives negative and insignificant sign. The teacher per pupil (*TPR*) seems to be highly significant and thus to have a direct relationship with the dependent variable.

The results from the cross-section model show that population density is a key important determinant for expenditure per pupil. A

more densely populated prefecture is associated with higher per pupil cost. This finding is most likely a direct result of differences in the type of the primary schools and the necessary transportation costs. The proportion of pupils enrolled in public primary schools and the *GDPPR* are significant cost factors between prefectures (see Table 6.18).

Because of interdependencies of two explanatory variables, *TPR* and the average size of schools (*ASSR*), the analysis was conducted with a 'new' regression model by omitting the *TPR*. All three of the regression models without *TPR* show lower explained variance. In the absence of this variable, all the other variables except *GDPPR* (see Table 6.20) show stronger effects on expenditure per pupil. More particularly, the interrelated variable of *ASSR*, when *TPR* is removed, has significantly stronger effects on the dependent variable.

Comparing the three models, it was verified that the cross-sectional model had advantages compared to the other two for the following reasons:

- the R^2 statistics are 91.7% indicating that a sizeable portion of the variation in the dependent variable can be explained;
- it enables identification of any school spending disparities between rich and poor prefectures.

For these reasons the cross-sectional model is the more successful and makes it possible to calculate the relative cost of using variables with different efficiency in terms of achieving educational

policy. Since this model is generally preferred to the other two (see chapter four, American studies) it has been possible to conduct a validity test of the whole distribution of the cross-sectional results on which we examined the differences of the estimated and the true value of *CEPR* in order to verify the validity of the model. Analysis of this test will lead to a broader understanding of the evaluation of the cost expenditure described in this model. The technique (formula) used in order to conduct the validity test is: $\Delta x/x$ (%), where Δx is the difference between the estimated and the true value and Table 6.22 (p. 279) shows the results.

It is clear there are no significant differences between the true and estimated outcome, and we can conclude the model is working and the results are consistent with recent theoretical predictions. The only exception is the prefecture of Korinthias where the difference between actual and predicted values is 4.82%, a percentage much greater than the rest of the prefectures. Three reasons can be postulated for this discrepancy :

- that the prefecture of Korinthias is, in some ways, different from other regions;
- that the result is 'an accident of statistics'; we know that in all distributions some few results will lie in the tails of the distribution, the result for Korinthias may be one such;
- one reason for this unusual difference between actual and predicted value is that some part of the data of this region may be

in error. This is a possibility which cannot be further investigated by this researcher;

Study of population, social conditions and geography quickly rule out point one; Korinthia is not an exceptional prefecture. It is not possible without further study to confirm or deny either of the other two explanations. Each is unlikely but possible.

Over the past 20 years or so, many empirical studies (mostly American, see Chapter 5) of the determinants of education expenditure have been conducted. Most of these studies have used as dependent variable educational expenditure per pupil and emphasised socio-economic characteristics as they affect demand for education and ability to provide public education. Moreover, most of the studies (see Chapter 5) that have analysed the determinants of education spending used regression analysis for a sample period of one, two or three school years. Researchers concerned with the development of such regression models have applied them for a number of school districts in the USA. The present study also addresses the determinants of education spending but for the Greek reality. It developed three regression model for Greek public primary education, by incorporating cost factors on expenditure. The present study as well as the previous ones take a common approach (regression analysis) towards the determinants of education spending. They all show a high explanatory power for this type of work. The equations and coefficients of the present study cannot, however, be

compared directly with the review studies on the determination of education expenditure for the following reasons:

- the integration of the results in this research is for 10 school years whereas the American studies much shorter estimation periods of one, two or three school years;
- the regression models in this study were applied for 52 prefectures across the whole country of Greece, whereas the American studies were focused on selected school districts in a single State;
- differences in taxation system, the provision of schooling for ethnic groups and other socio-economic characteristics, mean that the range and importance of the variables are not the same;
- similar to the previous point some of the American studies incorporated additional cost factors that could not be considered in this study due to lack of local data;
- the relationship between government and local spending on education appear to be completely different between Greece and the USA.

To conclude, the similarities between the results of the three models gives confidence in the reliability both of the data and the analytic procedure, and hence the value of this approach to the study of primary education expenditure.

In the first part (chapters one, two and three) of the thesis, arguments from theory and principles of good management have been

used to identify present weaknesses in some parts of the administrative system of Greek primary education. Predictions made in chapter one relating to cost factors linked to school size and geographical distribution were confirmed by the regression equation. The results from this econometric analysis confirms the view from the previous chapters that important features of Greek primary education are determined centrally since the model shows per pupil expenditure on schooling does not vary significantly from one prefecture to another. Centralisation imposes on the educational administration in all prefectures standard levels of teacher costs, which make up the largest percentage of primary education spending.

In both analyses, managerial and econometric, it is found that central government is the main resource which provides funding to prefectures to provide primary schooling. Thus, both approaches suggest that the Greek school administrative system and the financial provision to primary education is characterised by a high degree of centralisation. The analysis and the results of this research have shown that centralisation has important influences on primary education spending. Findings from the application of management theory suggest that centralisation is inefficient. Thus, results from both managerial theory and empirical analysis of current expenditure data suggest that Greek primary education may be characterised by a lack of effectiveness and efficiency.

Since it is the first empirical investigation in the case of public expenditure per pupil in Greece, these results may have some useful

application to the allocation of expenditure and may contribute to the better understanding of the public financing of primary education and to the effectiveness of associated administrative system.

Table 6.22
Validity Test

Prefectures	$\Delta x / x$ (%)
Rest Attiki	0.026
Etolias	0.015
Viotias	0.057
Evias	0.019
Evritanias	0.254
Fthiotida	0.030
Fokida	0.191
Argolida	0.036
Arkadia	0.096
Achais	0.022
Ilias	0.052
Korinthias	4.82*
Lakonias	0.040
Messinias	0.076
Zante	0.012
Corfou	0.026
Kefalonia	0.006
Lefkada	0.046
Arta	0.027
Thesprotias	0.007
Ioannina	0.020
Preveza	0.014
Karditsa	0.017
Larisa	0.018
Magnisia	0.207
Trikala	0.014
Grevena	0.021
Drama	0.342
Imathias	0.017
Thessaloniki	0.012
Kavalas	0.571
Kastoria	0.013
Kilkis	0.008
Kozanis	0.013
Pellas	0.065
Pierias	0.006
Serres	0.008
Florina	0.116
Chalikiidiki	0.125
Evros	0.054
Xanthi	0.040
Rodopi	0.378
Dodekanisa	0.016
Kiklades	0.062
Lesbos	0.026
Samos	0.251
Chios	0.036
Iraklio	0.010
Lasithiou	0.037
Rethimno	0.074
Chania	0.016
Greater Athens	0.400

* See text

CHAPTER SEVEN

CONCLUSIONS AND REMARKS

7.1 Summary of the chapters

This thesis has been concerned with presenting features of the administrative and economic pattern of primary education as applied to Greece. It was intended as a study which will help to comprehend and develop individual knowledge about Greek investment in primary education. In this concluding chapter, the previous chapters are summarised and guidelines for investment in education are identified.

Chapter One considered the social, political and economic conditions in Greece. This chapter discussed the implementation of educational policy through the educational reforms of past years, the conduct of economic policy, and a consideration of the political environment. An overview of some demographic and social factors was also provided. The implementation of past reforms determined the fact that the education system in Greece is centralised. Although there was an attempt to give prefectural independence with the Law of 1994, local authorities are still heavily dependent for their financial services on central government. The present unfavourable economic situation has a negative influence on educational investment because factors such as high public debt and unemployment ensure a reduction in the amount allocated to education from public investment outlay.

The political system, which is suffering from a number of drawbacks such as centralisation and bureaucracy, affects educational policy because most of the decisions for education are manipulated by political interests and by a certain lack continuity. Reductions in the birth rate, the geographical distribution of the population and the character of the Greek family itself create problems for the effectiveness of the educational system, having a particular impact on the size and number of school units (Chapter One, pp. 24-32). It was concluded that in the field of educational policy, effective, firm and responsible performance is an absolute necessity for the development of education in Greece.

Chapter Two was concerned with the external management of primary schools of Greece, the concept of management and the concept of educational management. It is concluded that the Greek public sector has several administrative problems which may make it ineffective and inefficient. These include a high degree of centralisation of administrative power, bureaucratic procedures, an expensive administrative system and an erosion of decision-making because of the frequent change of high level personnel (including the Minister). The Ministry of Education lacks the necessary steering capacity to handle such a complicated system. Although it is overstaffed, reform proposals for several matters of primary education happen too frequently and people do not have time to adjust to a changing environment. Decision-making authority is not clearly divided between national, regional and local bodies. Educational

policies fail since they require the co-operation of too many public organisations and decision-making cannot focus easily on a specific person or office. Therefore, the growth of bureaucracy and centralisation combine to produce an ineffective and inefficient Greek educational administrative system which urgently needs restructuring and the implementation of new policies to be more productive and more effective.

Chapter Three dealt with the internal management of Greek primary schools with particular reference to the role of the headteacher and the organisation of the school's administrative work. The analysis of the school administrative system reached the conclusion that Greek primary schools do not have significant administrative independence; even the recruitment of teachers is not by an open competition but by a closed list. Several bodies (e.g. the School Council, the Teachers' Council) connected with education know about the problems and have expressed their views as to their solutions. However, those bodies cannot make any decisions about improvements in the interests of school efficiency. Moreover, there is no clear legislation about the division of responsibilities and authority between the Teachers' Council and the headteacher. The headteacher is ignored by the State since he or she has neither the necessary power nor the appropriate managerial training to control the internal school affairs efficiently. The lack of school independence and the complicated procedures of school decision-making are affected by an old and out

of date educational administrative system which continues to work only in traditional ways.

Chapter Four discussed the concept of human capital and its contribution to economic development. It was demonstrated that in developed countries such as Greece, the possession of an educated workforce, human capital, is a principal determinant of development. Development as both an objective and a process reflects a change in fundamental attitudes to life and work. It follows that education plays a significant part and is also a satisfactory index for the rate of development. It is necessary, therefore to make effective use of educational expenditure. This need justifies the study described in the following two chapters, the identification of major influences on primary education expenditure in Greece.

Chapter Five was concerned to show the validity of the methodology employed in the following chapter to draw conclusions about determinants of educational expenditure in Greece. The most important purpose of this econometric analysis is to identify the determinants of the cost of educational expenditure in primary education in order to help the authorities to implement and apply decisions that will facilitate and rationalise the decision-making processes and lead to the more efficient allocation of public revenue for primary education. Econometric work on educational expenditure is important not only for forecasting but also for designing plans for, and evaluating decisions on educational expenditure. All researchers (including the present author) who build econometric models for

educational policy should take into account all the above considerations. They should explain all the variations of their variables and give, as far as it is possible, precise estimates of relationships. The results of previous studies described in this chapter showed that the method is capable of confirming similarities in patterns of educational expenditure where they are expected. The same and other studies have shown also that the method is sufficiently sensitive to identify changes in patterns of expenditure resulting from local variations in size, prosperity and town hall administration.

Chapter Six was concerned with the construction of three regression functions or equations that predict expenditure per pupil in Greek primary education in terms of seven cost factors. We applied three analyses because of the nature of the data since the research is for the Greek prefectures. All the variables (cost factors) used in the three regression equations are indicators for each prefecture. Briefly, the results showed that two of the three regression equations shed most light on expenditure per pupil. Time-series results showed that centralisation has significant implication on current expenditure per pupil. The financial system for education being centralised, population density and unemployment are not significant determinants whereas teacher per pupil ratio has a direct relationship with the expenditure per pupil. Cross-section results (between prefectures), on the other hand, showed that population density and the proportion of pupils enrolled in public primary schools are important determinants for the per pupil cost. It is important to inform the reader that as the cross-

section regression equation had the larger explanatory power of the two, it helped us to have a broader understanding of the determinants of per pupil expenditure. Since this model was the more successful one, a validity test of the cross-sectional results was conducted on which we examined the differences of the estimated and the true values of the per pupil expenditure in order to verify the validity of the model. The results from the test showed no difference between the true and estimated outcome, for each prefecture thus it was clear that the cross-section model was valid and the results were consistent with theoretical predictions.

7.2 Some findings

World-wide research on investment in education has shown that it enhances profitability and productiveness. In order for education to contribute to the development and growth of a country, it needs to be both productive and effective. This research supports the view that words such as efficiency, effectiveness and productiveness do not currently apply to the Greek school administrative system. The demand for greater flexibility and for new conditions and opportunities has been increased further and faster during the last years because of the European Union. The Greek school administrative system urgently needs careful re-planning and re-design of its organisational structures. Modernisation, greater flexibility, delegation of power and

above all political agreement and co-ordination are basic issues for a more effective implementation of educational policy.

The findings from **Chapter One** suggest that :

- all the education reforms that took place over the years occurred with changes of government, a fact which make us support the view that each government follows its own educational policy and does not contribute objectively to the effective development of the national educational system;
- education reforms proved useful to some extent in pedagogical matters but have not given any solutions to fundamental administrative problems such as the devolution of power from the MNERA to PEAs and school institutions and the simplification of bureaucratic procedures in the field of educational administration (pp. 20-21). The latter not only confirm why education reforms in Greece change very often but also explains why its administrative machinery remains traditional and bureaucratic;
- the geographical characteristics of Greece affect pedagogically, socially and economically the function of primary education in the sense that there are too many small schools with 5-15 pupils (pp. 27-28);
- Greece faces too many severe economic problems and so it does not satisfy the conditions for a proper provision of funds to education (pp. 43-44).

The findings from **Chapter Two** indicated that :

- the MNERA is an over centralised, overstaffed, complicated and expensive public organisation for the following reasons: **first** it is responsible for many educational affairs (such as formulation and implementation of educational policies, appointment of teaching staff, financial arrangements, school operation (pp. 83-84)); **secondly** it functions on six managerial levels (Minister / Under-secretary / Secretary General / General Director / Head of Subdivision / Chief of Department) and to undertake the task, the number of employees continuously being increased (pp. 88-89); **thirdly** there is no rational distribution of tasks between subdivisions and departments and as a result some departments have one employee and others more than one without apparent justification (pp. 90-93); **fourthly**, there is not enough delegation of power to the lower levels because many documentation requires the minister's signature; and **finally**, the composition of its staff may be sufficient for the day-to-day executive process, but it does not induce one, however, to believe that employees can contribute very much to the promotion of education development strategies (pp. 93-94);
- the PEAs act as the middle management of the Greek administrative system and not as an independent organisation for a

- specific educational area since many school affairs (see Chapter 3) demand ministerial approval (p. 123);
- the administrative system relating to Greek educational authorities at central and prefectural level is complicated, expensive and very costly as it includes many bureaucratic administrative activities (pp. 147-149, and also see *Examples one and two*);
 - the heads of PEAs have limited power because there lie with a decision making body (PYSPE) (pp. 119-121);
 - the heads of PEAs do not have essential qualifications and training in modern management (pp. 122-123);
 - the administrative staff of PEAs do not have the appropriate qualifications and ability to make suggestions about important educational matters or to solve administrative problems (pp. 122-123);

The findings from **Chapter Three** suggest that :

- the headteachers' role is neglected by the State because a headteacher does not have the necessary authority and managerial training to control internal school organisation or to manage school affairs effectively (pp. 176-177);
- the deputy-head holds an isolated job since the holders of deputy headship are in charge only during the head's absence (pp. 161-162);

- there is no clear definition of areas of responsibility and authority between a Teacher's Council and headteachers and the latter does not have the power to manage school issues. This legislative ambiguity may cause opposition and conflict among the teaching staff (p. 163);
- the Greek primary (and secondary) schools operate without enjoying any type of administrative independence because all school issues demand ministerial or prefectural approval (see Examples 1, 2, 3, and 4, pp. 178-195). The school authorities are, thus, controlled and influenced by the MNERA and PEAs while the relationship between MNERA and school could be characterised as excessive concern with day-to-day activity and with routine matters;
- educational laws concerning the selection of headteachers and deputy-heads do not have the appropriate duration because the central authority (apparently because of political involvement) changes the law every time a new government comes into power (pp. 176-178);

Chapter Six confirms the following :

- central government is the main resource which provides considerable funding to prefecture primary schools (Time-series results, pp. 263-266). Findings from the application of management theory suggest that centralisation results in the development of greater bureaucracy and administrative expense.

Since, Greece is the country in the European Union that has the highest administrative expenses and the only country where public expenditure decisions are taken by 'old fashioned' methods (Pesmazoglou, 1987, p.154), these may suggest that Greek primary education is inefficient and expensive;

- the proportion of pupils enrolled in public primary education is a significant cost determining factor within and between prefectures;
- the less populated prefectures have higher expenditure per pupil (cross-section results, pp. 268-271);
- the teacher / pupil ratio is the most important determinant of the expenditure per pupil within and between prefectures. Teacher costs make up the largest percentage of the primary education budget and thus dominate the pattern of primary education spending;
- the size of a school is a local variable. When teacher costs are included in the analysis, the effect of school size is negligible. When, however, the models are re-calculated without teacher costs, school size is a significant determinant on current expenditure per pupil.

7.3 Characteristics, limitations of the study and suggestions for further investigation

The present thesis has discussed the day to day administrative work at all administrative levels of primary education (primary schools, PEA and MNERA) as well as the way primary education is being financed from the State. The findings of this research have shown that the administrative system and the allocation of the financial services are characterised by a high degree of centralisation. These results may have some important consequences for the provision of education in Greece. This study does not, however, attempt to determine if these findings (e.g. centralisation) influence the quality of primary education and more research in this area is required. It must also be recognised that this study has some limitations and thus other areas too require further investigation. The research did not estimate the time that headteachers, deputy heads and teachers spend in administrative work since it is evident that in many primary schools there is no administrative staff. Moreover, it has not discussed and analysed extensively the creation of an appropriate selection system for the top management of primary education. People holding high administrative posts should have the 'right' educational level and appropriate qualifications in order to be able to solve effectively important administrative problems and to make rational decisions about education.

At a time when the public budgets are strained, the efficient allocation of the public funding in the prefectures is very important. The empirical study is in fact a re-analysis of data that has already been in the public domain. It is recognised that this research had limitations imposed by the unavailability of local data. Consideration should be given to the collection of more detailed educational or economic data at local level.

An analysis of data from another southern European country having contrasts between rural and urban areas such as Italy or Spain, may be necessary for further comparison and confirmation of the results. To conclude, although this study is a correlation survey and there is a strong relationship between the variables have been used, it is not enough to establish cause and effect. The study could be repeated after a change in the educational system of national policy or done as experimental investigation. The present study gives a base line against which the effects over time of a policy change could be measured.

7.4 The need for improvement of the administrative educational system and better allocation of resources to primary education? Some recommendations

As it has already been stated, at the heart of many of the problems that based the Greek educational system lies the highly centralised, bureaucratic administrative and educational expenditure decision-making system within which primary education operates. Overall, it makes primary education a closed system, not easily amenable to change and innovation. Given that education is one of the most significant dimensions which lead a country to socio-economic development, the Greek educational system needs to be put onto a firmer and more objective footing. The Greek school administrative system urgently needs careful, re-planning and re-design of its organisational structure and to raise the quality and efficiency of school education. In order for the Greek primary education to be more efficient, it needs to be improved as follows:

- decentralisation with the accent on increased powers for local authorities in determining the educational needs of their area and the granting of appropriate resources to meet them; and within such a framework, more freedom to the individual school, through school committees, in the management of its affairs;

- drastic review of the role, functions and organisation of the MNERA to relieve it of its present routine and bureaucratic functions and improve its planning, policy making and steering capacity for the achievement of nationally agreed targets and objectives;
- the decrease of the number of administrative levels and the number of general divisions, sub-divisions and departments by devolving power from MNERA to PEAs;
- the rational distribution of employees and tasks among the sub-divisions and departments;
- the creation of specific councils (one for each educational level) responsible for the design and implementation of educational policy;
- the devolving of power from central administration to PEAs and schools. Responsibilities of decision-making power must be transferred from the central administration to the prefectures and local authorities. Rational devolution of power is the key to an effective and productive implementation of educational policy. The delegation of power to prefectures' authorities will promote accountability because the responsibilities will clearly be defined and tasks will be performed in the way required. The clarification of decision-making procedure aids efficiency and democracy since it expresses the prefectures' authorities opinion. It cuts down routine and loss of time. Administrative decentralisation is a flexible and effective provider of public services because prefectures know and understand their needs better than does the central government

- and they protect the public from the physical inaccessibility of central administration;
- the need for reorganising the administrative school system by shorted approval procedures and new methods of administrative work; in-service training system is needed for the Heads of PEAs because most of them do not have appropriate experience and qualifications. The requirement for qualified heads in educational administration arises from the increasing needs and changes in the educational system and is a necessity for an effective decision-making procedure;
 - new administrative structure for PEAs with more departments and the appropriate administrative staff because they would be more effective and responsible for their activities;
 - the need for administrative changes in the field of primary education. The first step of administrative reform must be the devolution of power from the central administration and PEAs to school institutions. Within the field of primary schools the term devolution means that the decisions about most school problems and affairs should be taken by the headteacher or teacher's council. To do this the schools should have charters to function as self-governing public organisations while supervision by PEAs and MNERA should be confined to evaluation and control of legal matters and effective leadership. In order for the headteacher to be effective, to be able to set clear targets, to control and motivate educational staff and to implement effectively policy decisions he or

she should have some managerial training. In addition the deputy-head should take over more responsibilities. More particularly the deputy head should participate in decision-making and should always be in constant communication with the headteacher. From the managerial and administrative point of view the participation of the deputy head in decision-making is very important because: the school units are complicated public organisations and the headteacher cannot alone carry out any difficult tasks. Effective communication between headteachers and deputies, will contribute to an efficient performance of the administrative work in the school; and the participation of the deputy head in decision-making will help the person to learn the job of the headteacher and to obtain sufficient training for headship responsibilities in circumstances when the headteacher is absent or in promotion interviews;

- the plethora of education laws related to school affairs should be replaced by a new education act introducing simpler administrative procedures and better methods of working. In other words the codification of school legislation is an essential prerequisite for raising the efficiency of school management by reducing the amount of bureaucratic activities so that teachers and civil servants will not have to spend time in day-to-day routine matters. Finally, there is need for political agreement on educational acts. To this end the educational acts must have longer implementation and not be replaced immediately every time there is a change in political power. They must be applied with credibility and continuity and

provide the authorities with clear determination of the responsibilities of public organisations;

- replacing the present central control over finance by the delegation of lump sum budgets. Most of the recent developments in public finance theory begins with Tiebout's (1956) model which reflects the effects of government structure on public expenditure. Tiebout suggested that the preferences of the population for the level of public expenditure are better handled by local decisions rather than by those of central government. 'The important point is that the often neglected local expenditure is significant and when viewed in terms of expenditure on goods and services only, takes on even more significance' (Tiebout, 1956, p.418). Local authorities can provide a wide range of public services and be more effectively organised than central administration. School expenditure should be handled at local government level for the reason that the money should be allocated according to the needs of the schools and these as best decided at local levels. Some may object stating that central decision-making about school spending helps to eliminate financial disparity between prefectures. We have seen, however, that the consolidation of school spending between prefectures results in bureaucratic waste and perhaps overspending since a considerable amount of money is channelled towards administrative expenses;
- if there were governments policy which led to redistribution of industries and people away from the cities into the rural areas, then

there would be some cost savings in schools, as school sizes would inevitably increase.

The recommendations in the present chapter may hopefully have established a case for the improvement not only of the public financial facilities to primary education but also for the effectiveness of the public administration sector. Co-ordination, credibility, flexibility, continuity are principles that can positively influence the implementation of educational policy.

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APPENDICES

Appendix One
Tables and Figures

Table 1.1

Table 1.1 shows the weekly hours of tuition at the Greek primary schools.

Classes/Courses	A	B	C	D	E	F
Religion			2	2	2	2
Language	9	9	9	9	8	8
Mathematics	5	5	4	4	4	4
History			2	2	2	2
Environment Theory	4	4	3	3		
Geography					1	1
Physics					3	3
Social Science					1	1
Gymnastic	2	2	2	2	2	2
English				3	3	3
School life-civilisation	1	1	1	1	1	1
Behaviour Studies	4	4	4	4	2	2
Total Hours	25	25	27	30	29	29
Teacher of the Classroom	23	23	23	23	23	23
Specialities	2	2	4	7	6	6

Source: MNERA, Athens: 1995.

Table 1.2

Table 1.2 shows the number of Greek nurseries school, the teachers, the pupils and the pupil-teacher ratio for the school years 1976-77, 1977-78, 1979-80, 1980-81, 1981-82, 1982-83, 1984-85, 1985-86, 1986-87, 1989-90, 1993-94, 1994-95.

School Year	Nurseries Schools	Teachers	Pupils	Pupil-Teachers Ratio
1976-77	3,504	3,725	100,913	27.0
1977-78	3,925	4,519	107,603	23.8
1979-80	4,263	5,516	126,598	23.0
1980-81	4,455	5,803	128,224	22.0
1981-82	4,683	6,125	136,032	22.2
1982-83	4,799	6,342	137,815	21.7
1984-85	5,154	6,904	144,180	20.4
1985-86	5,307	7,123	147,373	20.7
1986-87	5,313	7,371	142,842	19.4
1989-90	5,555	8,008	141,248	17.6
1993-94	5,424	7,859	128,835	16.3
1994-95	5,454	8,185	125,848	15.3

Source: MNERA, Statistical Department, Athens: 1994-95.

Table 1.3

Table 1.3 shows the number of Greek primary schools, the teachers, the pupils and the pupil-teacher ratio for the school years 1976-77, 1978-79, 1979-80, 1980-81, 1981-82, 1982-83, 1984-85, 1985-86, 1986-87, 1989-90, 1993-1994, 1994-95.

School Year	Primary Schools	Teachers	Pupils	Pupil-Teachers Ratio
1976-77	9,051	28,404	876,342	30.9
1977-78	8,997	31,875	913,406	28.7
1979-80	8,958	32,813	864,006	26.3
1980-81	8,945	32,215	850,063	26.4
1981-82	8,907	33,537	851,848	25.4
1982-83	8,896	34,968	850,049	24.3
1984-85	8,891	35,710	844,834	23.4
1985-86	8,536	36,147	832,433	23.0
1986-87	8,129	34,169	828,406	24.3
1989-90	8,070	38,872	846,498	21.8
1993-94	6,967	37,214	690,201	18.5
1994-95	6,883	41,695	659,890	15.8

Source: MNERA, Division EEC, 1988, ESYE, 1989-90, 1993-94 and MNERA, Statistical Department, Athens: 1995.

Table 1.4

Table 1.4 shows the number of Gymnasia in Greek secondary education, the teachers, the students and the student-teacher ratio for the school years 1976-77, 1978-79, 1979-80, 1980-81, 1981-82, 1982-83, 1984-85, 1985-86, 1986-87, 1989-90, 1993-1994, 1994-95.

School Year	Gymnasia	Teachers	Students	Student-Teachers Ratio
1976-77	898	11,120	301,408	27.1
1977-78	1121	15,597	360,689	23.1
1979-80	1201	17,614	388,223	22.1
1980-81	1297	19,220	413,805	21.5
1981-82	1264	20,353	427,565	21.0
1982-83	1462	20,122	412,064	20.5
1984-85	1549	20,496	408,841	19.9
1985-86	1608	21,552	413,363	19.2
1986-87	1622	23,713	429,468	18.11
1989-90	1792	26,440	431,980	16.3
1993-94	1767	28,139	425,539	15.1
1994-95	1769	29,922	516,292	17.2

Source: MNERA, Division EEC, 1988, ESYE, 1989-90, 1993-94, MNERA, Statistical Department, Athens: 1995.

Table 1.5

Table 1.5 shows the number of lycea in Greek secondary education, the students, the teachers, and the student-teacher ratio according to the type of school for the school years, 1986-87, 1989-90, 1994-95.

Type of School	School Year	Number of Lycea	Students	Teachers	Student-Teacher Ratio
Public Schools					
	1986-87	1,352	360,627	22,386	14.77
	1989-90	1,483	375,130	25,588	13.25
	1994-95	1,568	384,175	31,198	10.8
Private Schools					
	1986-87	92	16,434	1,387	11.93
	1989-90	94	23,643	1,753	13.57
	1994-95	207	34,281	3,504	9.62

Source: National Statistical Service of Greece, 1986-87, 1989-90, 1993-94, MNERA, Statistical Department, Athens: 1993-94.

Table 1.6

Table 1.6 shows the number of universities, students, teaching staff, and student-teaching staff ratio for the academic year 1985-86 and 1995-96.

Unive- rsities	Students	Teaching staff	Staff- Student Ratio	Students	Teaching staff	Staff- Student Ratio
University of Athens	44,438	1,289	1:34	31,494	1,890	1:17
National Technical University	7,107	369	1:19	6,427	558	1:12
University of Thes- saloniki	33,707	1,251	1:26	35,294	2,041	1:17
Economic University of Athens	4,404	78	1:55	4,130	116	1:36
Agricu- ltural University	1,258	90	1:13	2,284	139	1:16
Panteion University	4,050	77	1:52	5,726	173	1:33
School of Fine Arts	442	36	1:12	412	33	1:12
University of Pireaus	4,082	55	1:74	5,078	111	1:46
University of Mace- donia	3,783	22	1:171	3,312	71	1:47
University of Patras	6,963	313	1:22	10,333	552	1:19
University of Ioannina	4,375	248	1:17	7,804	380	1:20
University of Thrake	3,353	102	1:32	6,981	260	1:27
University of Crete	2,294	194	1:11	5,742	451	1:13
Technical University of Crete	218	20	1:10	878	91	1:10
University of Aegian	87	14	1:6	2,398	129	1:19
Ionian University	56	9	1:6	798	69	1:12
University of Thessaly				1,714	132	1:13
Charo- kopeio University				120	11	1:11
Total	120,487	4,167	1:28	130,925	7,342	1:18

Source: MNERA, Statistical Department, Athens: January 1996.

Table 1.7

Table 1.7 shows the number of Greek students enrol in polytechnics for the academic years 1980-81, 1982-83, 1984-85, 1989-90, 1993-94.

Academic Years / Polytechnics	1980-81	1982-83	1984-85	1989-90	1993-94
Athens	6,909	7,425	12,426	18,730	22,617
Thessaloniki	3,790	5,282	7,378	9,179	12,993
Patra	1,267	2,289	3,882	3,472	6,629
Larisa	1,855	2,752	4,347	9,568	9,637
Irakleio	1,431	1,953	3,949	6,353	6,352
Kozani	1,108	1,224	2,257	2,505	3,660
Mesologgi	107	424	1,676	2,646	3,734
Pireaus	2,402	2,543	3,071	4,874	12,196
Kavalas	938	992	2,471	1,622	3,095
Serres	560	800	1,586	2,739	3,931
Halkidas	180	547	1,775	3,363	2,491
Kalamatas					197
Total	20,907	26,631	44,821	65,321	87,512

Source: MNERA, Athens: 1995.

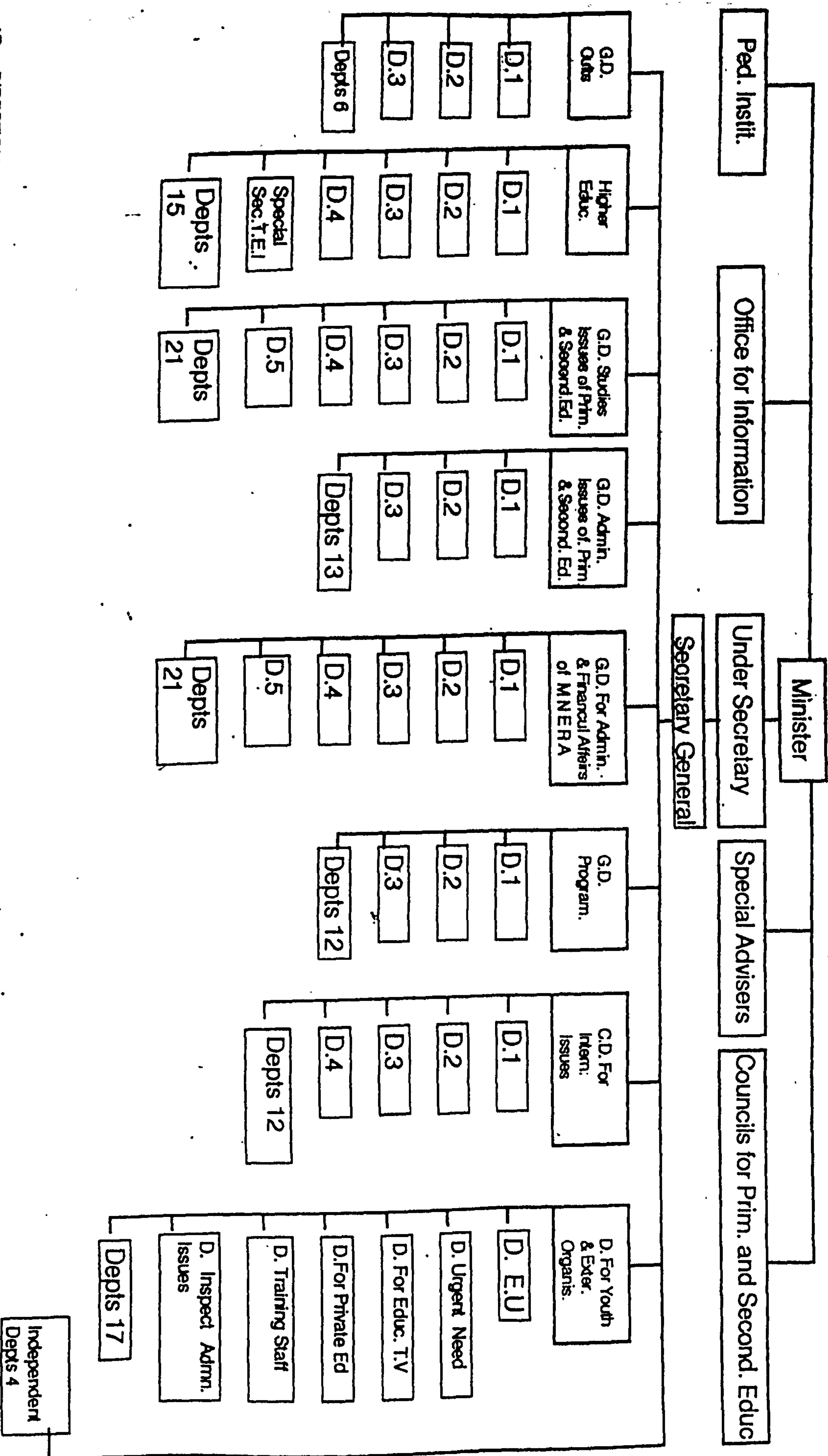
Table 1.15

Table 1.15 shows the total public expenditure on Education and as percentage of GNP and government expenditure for the years 1985, 1990 and 1994.

Country	Year	As % of GNP	As % of total government expenditure
Belgium	1985	6.2	15.2
	1990	5.1	-
	1994	5.7	10.2
Denmark	1985	7.2	-
	1990	7.5	13.0
	1994	8.3	12.6
France	1985	5.8	-
	1990	5.4	-
	1994	5.9	10.8
Germany	1985	4.6	9.2
	1990	4.8	9.5
	1994	4.7	9.4
Greece	1985	2.9	7.5
	1990	3.1	-
	1994	3.1	7.0
Ireland	1985	6.4	8.9
	1990	5.7	10.2
	1994	6.5	13.2
Italy	1985	5.0	8.3
	1990	5.2	9.0
	1994	4.9	8.8
Luxemburg	1985	3.8	-
	1990	-	-
	1994	-	-
Netherlands	1985	6.4	-
	1990	6.0	-
	1994	5.3	9.5
Portugal	1985	4.0	-
	1990	4.3	-
	1994	5.4	-
Spain	1985	3.3	-
	1990	4.4	9.4
	1994	5.0	12.6
United Kingdom	1985	4.9	-
	1990	4.9	-
	1994	5.5	11.4

Source: UNESCO Statistical Yearbook, UNESCO publishing and Bernan Press, 1997, pp. 4.14-4.17.

TABLE 9.1 ORGANISATION OF MINISTRY OF EDUCATION



*D. = DIRECTION

**G.D. = GENERAL DIRECTORATE

***Depts = Departments

****T.E.I. = Technol. Ed. Institut.

Source: M.N.E.R.A. - Athens, Febr. 1996

Figure 1.1

GREECE

		HIGHER UNIVERSITY EDUCATION (AEI)		HIGHER TECHNOLOGICAL EDUCATION (TEI)		POST-SECONDARY VOCATIONAL TRAINING (IEK) (5)		
COMPULSORY EDUCATION 	18							
	17	GENERAL LYKEIO (2)	COMPREHENSIVE LYKEIO (2)	TECHNICAL VOCATIONAL LYKEIO (2)	SPECIALIZED LYKEIO (2)	TECHNICAL VOCATIONAL SCHOOL (3)	APPRENTICESHIP	SPECIALIZED TRAINING (4)
	16							
	15							SPECIALIZED GYMNASIO (1)
	14	GYMNASIO (1)						
	13							
	12							
	11							
	10							
	9	PRIMARY SCHOOL (DIMOTIKO SCHOLIO)						
	8							
	7							
	6							
	5							
	4	NURSERY SCHOOL (NIPI/GOGEIO)						
	3							

Source: MNERA, Athens 1994.

Figure 1.2

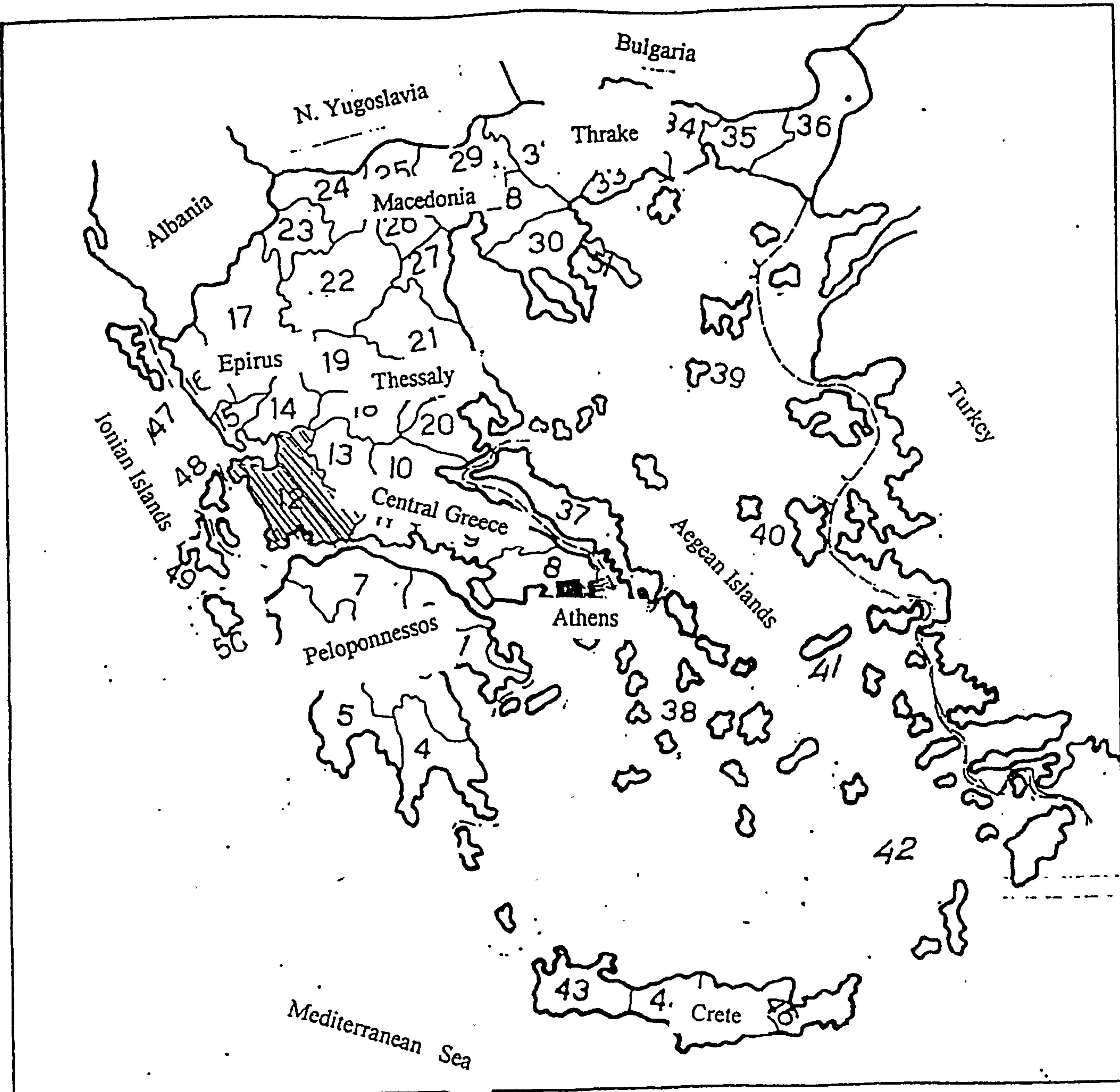
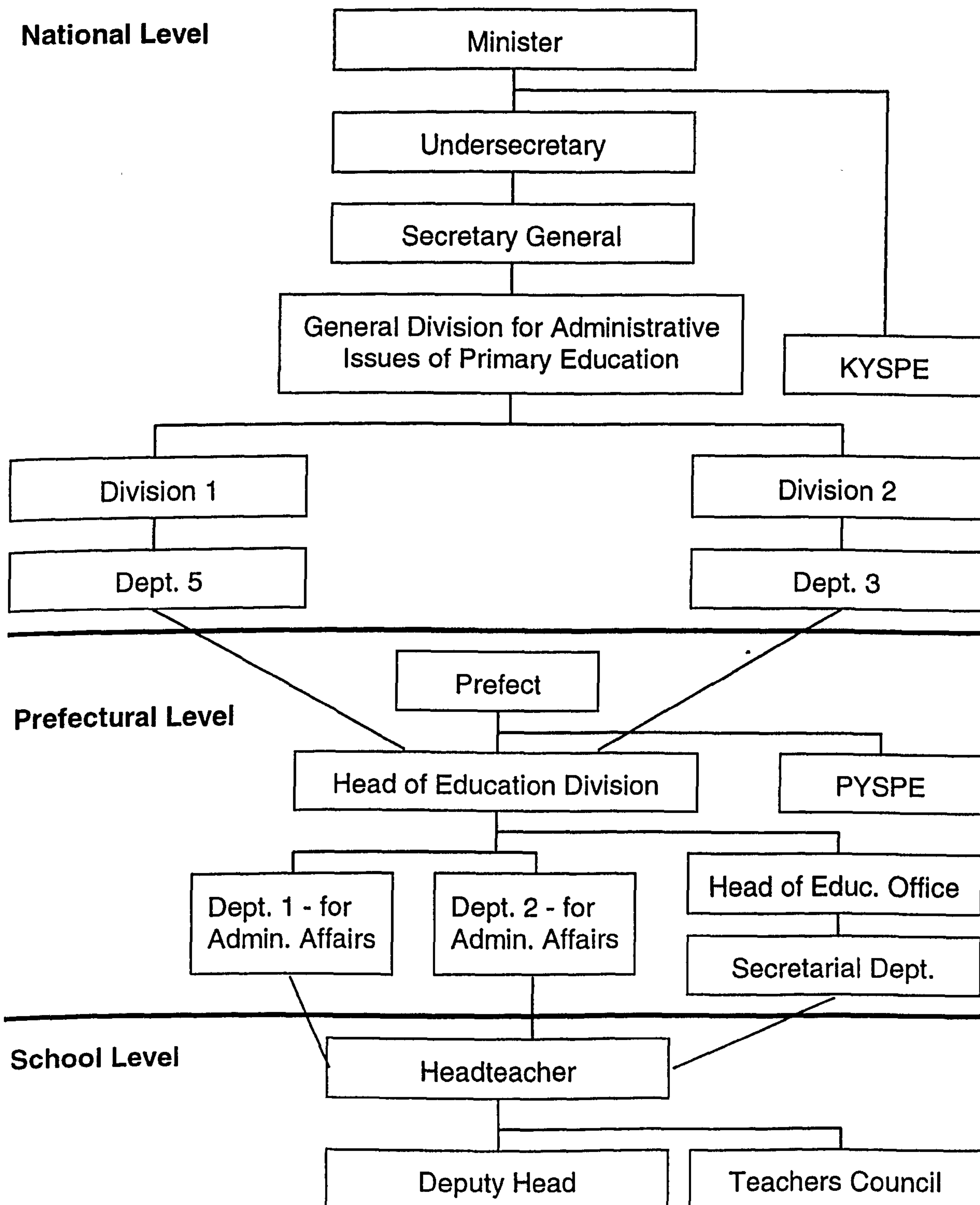


Fig 2.1: Administrative Structure of Primary Education in Greece



Note:

KYSPE: Central Council for Primary Education

PYSPE: Prefectural Council for Primary Education

Appendix Two

INTERVIEW RELATED MATERIAL (Date: 3-4-1996)

INTERVIEW SCHEDULE

- Πόσα χρόνια εξασκείτε το επάγγελμα του διευθυντή του εκπαιδευτικού γραφείου της πρωτοβάθμιας εκπαίδευσης; (How many years of service do you have as Head of Education Office / Directorate of Primary Education?)
 - Ποιοι είναι οι βασικοί διοικητικοί στόχοι που αντιμετωπίζετε κάθε μέρα; (What are the main administrative tasks you have every day?)
 - Μπορείτε να περιγράψετε τις γραφειοκρατικές διαδικασίες για: (Can you describe the bureaucratic procedures for:)
 - την εγκατάσταση ενός δημόσιου πρωτοβάθμιου σχολείου; (the establishment of a public primary school?)
 - τη δημιουργία και λειτουργία ενός ιδιωτικού δημοτικού σχολείου; (the creation and function of a private primary school?)
 - την αργοπορημένη εγγραφή των μαθητών; (the pupils' late enrolments?)
 - την προσωρινή άδεια ενός δασκάλου; (the irregular leave of a teacher?)
-

- την εκπαιδευτική άδεια ενός δασκάλου; (the sabbatical leave of a teacher for educational reasons?)
 - τον διορισμό των καθαριστών; (appointing school cleaners?)
- Πόσοι εργαζόμενοι ασχολούνται με τον καθένα από τους παραπάνω γραφειοκρατικούς στόχους; (How many employees are involved for each of the above administrative tasks?)
 - Πόσο διάστημα χρειάζεται για να εκπληρωθεί ο κάθε στόχος; (How long does each task take to complete?)
 - Από τη δική σας εμπειρία, πιστεύετε ότι οι υπάρχουσες γραφειοκρατικές ενέργειες που περιγράψατε είναι απαραίτητες; (From your experience, do you think that the existing administrative activities you have just described are necessary?)
 - Έχετε να προτείνετε διαφορετικό τρόπο χειρισμού των παραπάνω διοικητικών ενεργειών; (Do you have any suggestions of how else should these administrative activities be handled?)

Ευχαριστώ. (Thank you.)

Appendix Three

INTERVIEW RELATED MATERIAL (Date: 5-4-1996)

INTERVIEW SCHEDULE

- Πόσα χρόνια εξασκείτε το επάγγελμα του διευθυντή του συγκεκριμένου τμήματος; (How many years of service do you have as Head of this department?)
 - Ποιοι είναι οι βασικοί διοικητικοί στόχοι που αντιμετωπίζετε κάθε μέρα; (What are the main administrative tasks you have every day?)
 - Μπορείτε να περιγράψετε τις γραφειοκρατικές διαδικασίες για τη δημιουργία ενός δημόσιου δημοτικού σχολείου; (Can you describe the bureaucratic procedures for the establishment of a public primary school?)
 - Πόσοι εργαζόμενοι ασχολούνται με τον παραπάνω γραφειοκρατικό στόχο; (How many employees are involved for the above administrative task?)
 - Πόσο διάστημα χρειάζεται για να εκπληρωθεί ο παραπάνω στόχος; (How long does the above task take to complete?)
 - Από τη δική σας εμπειρία, πιστεύετε ότι οι υπάρχουσες γραφειοκρατικές ενέργειες που περιγράψατε είναι απαραίτητες; (From your experience, do you think that the existing bureaucratic activities you have just described are necessary?)
-

- Έχετε να προτείνετε διαφορετικό τρόπο χειρισμού των παραπάνω διοικητικών ενεργειών; (Do you have any suggestions of how else should these administrative activities be handled?)

Ευχαριστώ. (Thank you.)

Appendix Four

INTERVIEW RELATED MATERIAL (Date: 5-4-1996)

INTERVIEW SCHEDULE

- Πόσα χρόνια εξασκείτε το επάγγελμα του διευθυντή του συγκεκριμένου τμήματος; (How many years of service do you have as Head of this department?)
 - Ποιοι είναι οι βασικοί διοικητικοί στόχοι που αντιμετωπίζετε κάθε μέρα; (What are the main administrative tasks you have every day?)
 - Μπορείτε να περιγράψετε τις γραφειοκρατικές διαδικασίες για τη δημιουργία ενός ιδιωτικού δημοτικού σχολείου; (Can you describe the bureaucratic procedures for the creation of the private primary school?)
 - Πόσοι εργαζόμενοι ασχολούνται με τον παραπάνω γραφειοκρατικό στόχο; (How many employees are involved for the above administrative task?)
 - Πόσο διάστημα χρειάζεται για να εκπληρωθεί ο παραπάνω στόχος; (How long does the above task take to complete?)
 - Από τη δική σας εμπειρία, πιστεύετε ότι οι υπάρχουσες γραφειοκρατικές ενέργειες που περιγράψατε είναι απαραίτητες; (From your experience, do you think that the existing bureaucratic activities you have just described are necessary?)
-

- Έχετε να προτείνετε διαφορετικό τρόπο χειρισμού των παραπάνω διοικητικών ενεργειών; (Do you have any suggestions of how else should these administrative activities be handled?)

Ευχαριστώ. (Thank you.)

Appendix Five

INTERVIEW RELATED MATERIAL (Date: 2-4-1996)

INTERVIEW SCHEDULE

- Πόσα χρόνια εξασκείτε το επάγγελμα του διευθυντή σχολείου; (How many years of service do you have as headteacher at your school?)
 - Ποιοι είναι οι βασικοί διοικητικοί στόχοι που αντιμετωπίζετε κάθε μέρα; (What are the main administrative tasks you have every day?)
 - Μπορείτε να περιγράψετε τις γραφειοκρατικές διαδικασίες για: (Can you describe the bureaucratic procedures for:)
 - την αργοπορημένη εγγραφή των μαθητών; (the pupils' late enrolment?)
 - την προσωρινή άδεια ενός δασκάλου; (the irregular leave of a teacher?)
 - την εκπαιδευτική άδεια ενός δασκάλου; (the sabbatical leave of a teacher for educational reasons?)
 - τον διορισμό των καθαριστών; (appointing school cleaners?)
 - Πόσοι εργαζόμενοι ασχολούνται με τους παραπάνω γραφειοκρατικούς στόχους; (How many employees are involved for each of the above administrative tasks?)
-

- Πόσο διάστημα χρειάζεται για να εκπληρωθεί ο κάθε στόχος; (How long does each task take to complete?)
- Από τη δική σας εμπειρία, πιστεύετε ότι οι υπάρχουσες γραφειοκρατικές ενέργειες που περιγράψατε είναι απαραίτητες; (From your experience, do you think that the existing administrative activities you have just described are necessary?)
- Έχετε να προτείνετε διαφορετικό τρόπο χειρισμού των παραπάνω διοικητικών ενεργειών; (Do you have any suggestions of how else should these administrative activities be handled?)

Ευχαριστώ. (Thank you.)

Appendix Six

INTERVIEW RELATED MATERIAL (Date: 5-4-1996)

INTERVIEW SCHEDULE

- Πόσα χρόνια εξασκείτε το επάγγελμα του διευθυντή αυτού του τμήματος; (How many years of service do you have as Head of this department?)
 - Ποιοι είναι οι βασικοί διοικητικοί στόχοι που αντιμετωπίζετε κάθε μέρα; (What are the main administrative tasks you have every day?)
 - Μπορείτε να περιγράψετε τις γραφειοκρατικές διαδικασίες για την εκπαιδευτική άδεια ενός δασκάλου; (Can you describe the bureaucratic procedures for the sabbatical leave of a teacher for educational reasons?)
 - Πόσοι εργαζόμενοι ασχολούνται με τον παραπάνω γραφειοκρατικό στόχο; (How many employees are involved for the above administrative task?)
 - Πόσο διάστημα χρειάζεται για να εκπληρωθεί ο παραπάνω στόχος; (How long does the above task take to complete?)
 - Από τη δική σας εμπειρία, πιστεύετε ότι οι υπάρχουσες γραφειοκρατικές ενέργειες που περιγράψατε είναι απαραίτητες; (From your experience, do you think that the existing administrative activities you have just described are necessary?)
-

- Έχετε να προτείνετε διαφορετικό τρόπο χειρισμού των παραπάνω διοικητικών ενεργειών; (Do you have any suggestions of how else should these administrative activities be handled?)

Ευχαριστώ. (Thank you.)

Appendix Seven

INTERVIEW RELATED MATERIAL (Date: 5-4-1996)

INTERVIEW SCHEDULE

- Πόσα χρόνια εξασκείτε το επάγγελμα του διευθυντή αυτού του τμήματος; (How many years of service do you have as Head of this department?)
 - Ποιοι είναι οι βασικοί διοικητικοί στόχοι που αντιμετωπίζετε κάθε μέρα; (What are the main administrative tasks you have every day?)
 - Μπορείτε να περιγράψετε τις γραφειοκρατικές διαδικασίες για τον διορισμό των καθαριστών; (Can you describe the bureaucratic procedures for appointing school cleaners?)
 - Πόσοι εργαζόμενοι ασχολούνται με τον παραπάνω γραφειοκρατικό στόχο; (How many employees are involved for the above administrative task?)
 - Πόσο διάστημα χρειάζεται για να εκπληρωθεί ο κάθε στόχος; (How long does each task take to complete?)
 - Από τη δική σας εμπειρία, πιστεύετε ότι οι υπάρχουσες γραφειοκρατικές ενέργειες που περιγράψατε είναι απαραίτητες; (From your experience, do you think that the existing administrative activities you have just described are necessary?)
-

- Έχετε να προτείνετε διαφορετικό τρόπο χειρισμού των παραπάνω διοικητικών ενεργειών; (Do you have any suggestions of how else should these administrative activities be handled?)

Ευχαριστώ. (Thank you.)

Appendix Eight

Original Data

PPPS	PD	U	PEBP	CEPR	TPR	ASSR	GDPPR
Etolias - Akarnanias							
98.8	44	9.45	2.8	52344	0.049591306	62.39031339	0.348117233
99.34	44	9.6	2.8	56638.09524	0.047165233	66.66176471	0.378255409
99.42	44	9.56	2.6	50474.50954	0.046143734	71.76100629	0.365378196
99.31	44	9.58	2.6	61467.05036	0.050438803	71.12080537	0.46579939
98.99	44	9.34	2.2	56650.66456	0.055335556	68.29893238	0.490639742
99.03	44	9.02	2	61068	0.057223126	69.01020408	0.488271272
98.96	44	9.6	2.1	68069.03226	0.058697858	66.86785714	0.493632237
98.91	44	9.62	2.2	74622.74051	0.063242643	65.01805054	0.486526646
98.9	45	9.92	1.9	70066.12957	0.057612467	64.88191882	0.477924367
98.89	45	9.96	1.8	70496.40238	0.065583456	66.63385827	0.479006877
Rest Attiki							
89.69	110	8.3	2.8	46828	0.040454245	157.3712871	1.887084537
89.16	112	8.45	2.8	58767	0.046397861	144.3464912	2.06734027
89.08	114	8.47	2.6	48253.52861	0.041826357	129.9490196	2.180943658
88.09	117	8.52	2.6	60715.93525	0.0479143	146.6904762	2.424023579
87.65	119	8.32	2.2	52237.97468	0.049091518	157.2105263	2.219276507
86.95	127	7.9	2	56998.5	0.050946282	152.3592233	2.086358797
87.96	138	8.36	2.1	61615.57918	0.0509151	156.4536585	2.127825018
86.65	148	8.24	2.2	65199.70253	0.052712866	146	2.005381795
91.96	158	8.45	1.9	64187.80731	0.048649375	145.9019608	1.824036322
92.48	166	8.62	1.8	60057.04163	0.063185664	157.7817259	1.832361388
Viotias							
100	42	7.5	2.8	44904	0.041836827	113.5979381	0.760964294
100	43	7.84	2.8	50333.71429	0.040735874	115.3030303	0.815400831
100	43	7.7	2.6	46983.0654	0.042195928	114.94	0.791361971
100	43	7.72	2.6	58329.31655	0.047659176	107.8787879	1.005570663
100	43	7.68	2.2	56247.81646	0.054927464	103.0412371	1.051157225
100	44	7.67	2	60203.5	0.056042935	97.86868687	1.021596385
100	46	7.52	2.1	66466.42962	0.05647517	94.31632653	0.998863028
100	48	7.7	2.2	71004.32278	0.059212778	91.30208333	0.953772481
100	50	8.01	1.9	68080.59801	0.05341477	92.83505155	0.908532427
100	51	8.23	1.8	74166.09514	0.064661471	86.44210526	0.892287727
Evias							
99.9	48	9.75	2.8	46857	0.04311158	86.23444976	0.765527363
99.82	48	9.83	2.8	54809.57143	0.044349223	88.9047619	0.780181149
99.89	48	9.78	2.6	49842.3842	0.044632408	94.93939394	0.768488342
99.89	48	9.8	2.6	64237.08633	0.052450952	89.65641026	0.681633154
99.9	48	9.72	2.2	59096.01266	0.057381776	88.46938776	0.712685984
99.88	49	9.7	2	62763.5	0.05820317	89.5	0.74367671
99.86	50	9.78	2.1	71124.21554	0.061034566	84.86153846	0.785852492
99.88	52	9.8	2.2	77212.27215	0.065097301	81.69230769	0.67562156
99.58	53	9.88	1.9	67674.40199	0.057526428	79.47938144	0.653669431
99.22	54	9.76	1.8	66913.14172	0.063876202	78.8655914	0.648570102
Evritania							
100	13	11.11	2.8	76674	0.067484663	25.07692308	0.35890471

100	13	11.25	2.8	84493.90476	0.064611737	27.6557377	0.395340824
100	12	11.12	2.6	73111.43052	0.061801059	30.33928571	0.386217949
100	12	11.14	2.6	95031.43885	0.073557387	28.67272727	0.495994239
100	12	11.03	2.2	88290.47468	0.080427046	26.01851852	0.52949099
100	12	11	2	102026.5	0.088986142	24.92727273	0.507229128
100	14	11.01	2.1	113667.7786	0.091385768	25.18867925	0.472948716
100	15	11.04	2.2	123929.5443	0.098867925	25.98039216	0.432539723
100	16	11.08	1.9	94089.13621	0.072156863	27.12765957	0.396255188
100	17	11	1.8	111300.55	0.096722622	32.92105263	0.380021476

Fthiotida

100	38	8.09	2.8	56209	0.048286117	69.07027027	0.47971419
100	38	8.12	2.8	59118.95238	0.044118758	81.20858896	0.517131919
100	38	8.1	2.6	56607.05722	0.047343938	81.76687117	0.504372211
100	38	8	2.6	67331.76259	0.05154306	80.37662338	0.643795121
100	38	8.32	2.2	60959.93671	0.055	77.12418301	0.677503395
100	38	8.3	2	66267.5	0.056501334	73.42567568	0.66870925
100	39	8.08	2.1	72552.14076	0.057187158	75.09589041	0.667244897
100	40	8.09	2.2	80012.48734	0.062334468	72.91034483	0.649573252
100	40	8.58	1.9	73693.48837	0.062907557	72.92307692	0.630467299
100	41	8.63	1.8	75971.00099	0.069196876	76.22900763	0.627113352

Fokida

100	20	8.94	2.8	59437	0.053818182	45.83333333	0.455307059
100	19	9	2.8	66631.19048	0.052705552	49.92982456	0.49795818
100	19	9.12	2.6	58981.79837	0.051639916	51.17857143	0.48697486
100	19	9.05	2.6	70282.23022	0.055618189	49.27777778	0.624593503
100	19	9.07	2.2	67404.90506	0.063511327	47.53846154	0.661798767
100	20	9.02	2	87864	0.065723794	50.08333333	0.633719112
100	22	8.93	2.1	82583.13783	0.06825054	49.25531915	0.595642779
100	23	8.98	2.2	90079.84177	0.073348519	46.70212766	0.549645338
100	25	9.32	1.9	81038.15615	0.067683508	44.63829787	0.507865082
100	26	9.44	1.8	82754.50942	0.078256563	46.95348837	0.489241814

Argolida

97.49	44	6.24	2.8	46772	0.041419387	77.02857143	0.476716025
97.48	44	6.35	2.8	56213.7619	0.045043882	74.5	0.514014554
97.5	44	6.38	2.6	49336.83924	0.043704229	83	0.500206845
97.38	44	6.44	2.6	57440.14388	0.04602134	86.43333333	0.635552948
93.43	44	6.42	2.2	49902.05696	0.047520125	83.7173913	0.662215385
97.01	45	6.43	2	55430.5	0.05038961	85.55555556	0.652772457
96.65	45	6.14	2.1	60863.37977	0.051046248	85.26136364	0.65767756
95.99	46	6.52	2.2	66870.01899	0.05524239	81.56321839	0.645800119
95.46	46	6.5	1.9	63386.14618	0.054437527	79.3908046	0.631917028
95.23	47	6.83	1.8	60669.69277	0.058103062	80.6626506	0.631777687

Arkadia

100	24	7.25	2.8	60498	0.052970162	44.82208589	0.432402694
100	23	7.44	2.8	64740.2381	0.049065754	56.088	0.471244529
100	23	7.43	2.6	58663.40599	0.049797412	60.24409449	0.46149368
100	23	7.42	2.6	70131.18705	0.053954281	61.24347826	0.59096255
100	23	7.38	2.2	61770.44304	0.056242808	60.98245614	0.624651657

100	23	7.25	2	72327	0.062718299	59.32432432	0.616198824
100	24	7.23	2.1	86739.45748	0.069945704	63.25252525	0.611515678
100	25	7.42	2.2	89617.70886	0.071039154	63.05208333	0.592141728
100	25	7.36	1.9	90401.81063	0.077056879	59.88541667	0.571993182
100	26	7.21	1.8	82691.23885	0.078245916	67.61627907	0.567500556

Achaia

98.3	88	9.79	2.8	44754	0.042077846	79.24127907	0.593606716
98.22	88	9.29	2.8	53674.09524	0.044419788	77.32840237	0.610550377
97.99	89	9.15	2.6	45791.81199	0.041860791	87.03353659	0.541339599
97.67	89	9.25	2.6	56455.97122	0.046630348	84.13141026	0.670846268
97.99	90	9.24	2.2	49075.91772	0.048355973	85.80844156	0.842237357
97.7	91	9.02	2	53490	0.050328144	88.84067797	0.904645925
97.71	92	9.78	2.1	58180.95308	0.050455116	91.02857143	0.814679629
97.59	93	9.82	2.2	63850.46203	0.054514342	89.25090909	0.79711439
97.38	95	9.94	1.9	60635.24917	0.051360027	88.01486989	0.752850859
97.41	95	9.83	1.8	61468.48365	0.059546272	86.3219697	0.745767517

Ilias

100	68	7.8	2.8	53720	0.048693671	55.52173913	0.349035239
100	69	7.92	2.8	58821.28571	0.046540974	57.32765957	0.376696734
100	69	7.87	2.6	51906.49864	0.045621431	64.22707424	0.363985102
100	69	7.84	2.6	63470.2518	0.050540181	64.97115385	0.464160217
100	69	7.82	2.2	58825.44304	0.055651356	62.53921569	0.488541364
100	69	7.54	2	64295	0.058012138	62.80693069	0.486183162
100	70	7.99	2.1	69275.47654	0.057472197	61.595	0.509088999
100	70	7.9	2.2	74013.77848	0.060494035	59.80904523	0.48597802
100	70	7.86	1.9	70074.96678	0.057927093	58.62436548	0.478050747
100	71	7.82	1.8	68251.99207	0.062858166	58.47120419	0.479903471

Korinthias

100	57	7.32	2.8	46474	0.041597916	79.96527778	0.544901533
100	57	7.2	2.8	54762.52381	0.043040957	77.17482517	0.584733456
100	58	7.25	2.6	47526.66213	0.041480007	85.4893617	0.568195991
100	58	7.23	2.6	58267.80576	0.045959368	80.25362319	0.722587098
100	58	7.22	2.2	53309.43038	0.050076017	77.38235294	0.755399526
100	60	7.18	2	59579	0.053250956	75.53333333	0.730483639
100	63	7.31	2.1	63761.01906	0.052298264	75.89147287	0.707718346
100	66	7.38	2.2	70803.01899	0.057522124	75.33333333	0.670011295
100	69	7.52	1.9	64005.38206	0.054512287	73.37795276	0.633678948
100	71	7.62	1.8	61365.10406	0.058382904	73.80487805	0.619335381

Lakonias

96.57	26	4.24	2.8	57315	0.052188299	42.89677419	0.363667575
97	26	4.63	2.8	68668.71429	0.053722903	43.30612245	0.394145218
97.08	26	4.62	2.6	59609.26431	0.051753882	52.6969697	0.385420167
97.23	25	4.55	2.6	70018.41727	0.054920983	50.32283465	0.492584231
97.11	25	4.52	2.2	60801.20253	0.056358152	52.49166667	0.51748923
96.84	26	4.34	2	67363.5	0.059481361	51.8487395	0.508387076
96.88	26	4.73	2.1	71590.16129	0.058048374	54.00900901	0.504730833
97	27	4.98	2.2	74259.4557	0.059259259	54.25233645	0.488928328
97.03	28	4.95	1.9	70817.92359	0.059733717	52.43396226	0.472502055

97	28	5.05	1.8	67728.59762	0.063629518	52.59405941	0.468860308
Messinias							
99.38	55	7.48	2.8	56593	0.050327528	49.28346457	0.409228478
99.62	55	7.22	2.8	68767.33333	0.053855773	50.18828452	0.44166468
99.64	55	7.24	2.6	58174.9455	0.048908897	59.30316742	0.431771324
99.38	55	7.22	2.6	69806.54676	0.054808171	60.21	0.551983868
99.18	55	7.21	2.2	63242.34177	0.059050495	60.82653061	0.581139571
98.94	55	7.2	2	71178.5	0.063367532	62.02673797	0.575947601
98.6	56	7.44	2.1	74312.28739	0.060638392	64.26857143	0.57887709
98.37	57	7.62	2.2	75436.61392	0.06041743	69.13924051	0.567099227
98.37	58	7.58	1.9	66317.57475	0.055845794	71.16666667	0.553723539
98.15	58	7.66	1.8	67235.42616	0.063707672	70.16107383	0.553291206
Zante							
100	77	7.98	2.8	58616	0.054578097	60.54347826	0.429385403
100	78	8	2.8	67969.33333	0.055431548	61.09090909	0.461425115
100	78	7.96	2.6	55017.42507	0.049366244	78.89473684	0.449654934
100	78	8.2	2.6	70359.46043	0.057350272	72.5	0.572104723
100	79	7.89	2.2	60926.86709	0.059502344	74.94594595	0.594164109
100	80	7.78	2	66961.5	0.062683284	80.23529412	0.584716835
100	80	7.94	2.1	65317.65396	0.056610665	82.96969697	0.590596506
100	81	8	2.2	71594.52532	0.060415122	81.75757576	0.581246182
100	82	8.44	1.9	73856.66113	0.06122449	79.26470588	0.598354693
100	83	8.86	1.8	64050.43112	0.061816811	78.02941176	0.568196132
Corfu							
98.27	158	6	2.8	49017	0.044671884	59.32142857	0.450243688
98.42	158	6.2	2.8	56892.33333	0.045244921	59.87313433	0.486268654
98.48	158	6.05	2.6	49003.6921	0.043050431	67.75	0.473611588
98.67	159	6.15	2.6	60605.21583	0.048679567	62.72519084	0.601956833
98.85	160	6.12	2.2	54148.1962	0.05187705	63.31538462	0.625726722
98.77	162	6.04	2	57194.5	0.052516145	63.13076923	0.614766671
98.7	165	6.04	2.1	63204.3915	0.054385965	63.33333333	0.617861517
98.58	167	6.32	2.2	68592.64557	0.056980792	63.58196721	0.605233886
98.43	170	6.42	1.9	67415.28239	0.058445813	62.04065041	0.590196285
98.58	171	6.59	1.8	66169.14767	0.063665856	60.63934426	0.588859786
Kefalonia							
100	36	6.68	2.8	58094	0.051187551	37	0.376367888
100	36	6.34	2.8	65085.85714	0.049194232	46.23529412	0.40607535
100	35	6.4	2.6	49685.51771	0.041080259	82.15625	0.397483488
100	35	6.5	2.6	59427.6259	0.045492142	80.6	0.508603421
100	35	6.44	2.2	56256.83544	0.0509839	86	0.533733709
100	36	6.34	2	60878.5	0.053299492	87.55555556	0.528222541
100	36	6.63	2.1	103527.2947	0.050724638	86.88888889	0.533387925
100	36	6.58	2.2	67863.18987	0.053177691	88.96153846	0.524777105
100	37	6.62	1.9	60208.85382	0.045554095	91.32	0.540096575
100	37	6.79	1.8	68681.61051	0.058641975	90.72	0.51359597
Lefkada							
100	60	7	2.8	65600	0.057410662	38.79545455	0.331080442

100	59	6.98	2.8	76848.66667	0.058252427	42.25641026	0.359678
100	59	7	2.6	63491.32153	0.052774755	48.36842105	0.350573265
100	59	7.1	2.6	77472.15827	0.059798697	46.91666667	0.446779812
100	59	7.09	2.2	72006.39241	0.066329754	45.22857143	0.471249223
100	59	7.05	2	82940.5	0.073670724	47.3030303	0.469244707
100	60	6.98	2.1	83809.64076	0.069587629	50.06451613	0.475656617
100	60	7	2.2	85284.26582	0.067602041	58.07407407	0.469673145
100	60	7.01	1.9	74451.9103	0.062259307	62.32	0.485110538
100	60	7.44	1.8	79924.28147	0.074461137	66.56521739	0.463453759

Artas

99.72	50	10.1	2.8	64995	0.058380981	42.06329114	0.323128002
100	50	9.43	2.8	78308.04762	0.06184107	49.6484375	0.350473961
100	50	9.52	2.6	63999.19619	0.055671021	57.57264957	0.342211505
100	50	9.58	2.6	79567.6259	0.062641266	54.33333333	0.437371033
100	51	9.42	2.2	73450.63291	0.068608528	59.98947368	0.462962993
100	50	9.24	2	79583.5	0.069884726	59.69892473	0.460729078
100	50	10.08	2.1	85025.27859	0.068734579	61.67391304	0.463426242
100	51	10.19	2.2	95539.57595	0.07637139	57.32222222	0.454860847
100	51	10.38	1.9	100405.8472	0.070416916	54.48913043	0.445219624
100	52	10.08	1.8	103785.4757	0.08	53.65168539	0.445458222

Thesprotias

100	27	10.24	2.8	56315	0.053981436	46	0.33321183
100	27	10.32	2.8	67167.71429	0.056762976	48.8875	0.359638355
100	27	10.28	2.6	59118.47411	0.055194023	53.88311688	0.349580796
100	27	10.3	2.6	74664.53237	0.062680304	54.47142857	0.44474466
100	27	10.24	2.2	65531.96203	0.065789474	61.04918033	0.466548621
100	28	10.02	2	75381.5	0.07233324	59.21666667	0.453128676
100	30	10.16	2.1	81749.45015	0.072204285	63.09259259	0.44065048
100	31	10.38	2.2	91225.61392	0.079239303	64.3877551	0.419074063
100	32	10.45	1.9	89151.0299	0.070782159	64.45833333	0.397786087
100	33	10.11	1.8	87975.74331	0.079496522	64.23404255	0.389922864

Ioannina

99.37	30	11.5	2.8	59088	0.052684126	54.48117155	0.333653955
98.74	30	11	2.8	68443.42857	0.053452295	56.55	0.359376461
98.7	31	11	2.6	60107.82016	0.052057286	61.09722222	0.349740967
98.93	31	11.12	2.6	75595.39568	0.059376546	58.29807692	0.44477897
98.91	31	11.09	2.2	64297.56329	0.059918367	62.18274112	0.464200402
98.96	31	10.9	2	67136	0.063398421	62.03608247	0.455770794
98.85	32	11.36	2.1	80975.93842	0.065514822	59.38541667	0.454416464
98.95	30	11.7	2.2	88053.4557	0.070570024	58.10582011	0.441644142
99.15	33	11.82	1.9	92401.54485	0.078917487	55.04166667	0.428136996
99.24	34	12.24	1.8	90645.53518	0.086650124	57.24431818	0.425481988

Preveza

100	55	9.32	2.8	60550	0.050823694	54.34285714	0.409129497
100	55	9.68	2.8	72441.57143	0.053374908	57.38947368	0.441038102
100	55	9.45	2.6	61491.66213	0.050146983	63.54945055	0.429196295
100	55	9.43	2.6	79491.76259	0.059409663	63.32142857	0.54603828
100	55	9.52	2.2	68098.76582	0.059551431	62.31325301	0.572257384

100	56	9.32	2	79441.5	0.064990803	61.1625	0.563945921
100	57	9.31	2.1	84814.24487	0.063855666	61.6625	0.563188673
100	58	9.44	2.2	92615.98101	0.068756999	55.12345679	0.548399329
100	59	9.58	1.9	78888.50498	0.068255437	54.70886076	0.532426255
100	60	9.62	1.8	77738.90486	0.072347657	54.19736842	0.529764674

Karditsa

100	48	6.83	2.8	58017	0.049018669	62.54491018	0.402785568
100	48	6.51	2.8	67683.42857	0.050194553	63.85093168	0.435235569
100	48	6.76	2.6	58257.26158	0.047815334	70.43225806	0.42470525
100	48	6.8	2.6	70994.38849	0.054431263	67.77702703	0.542427234
100	48	6.82	2.2	68285.75949	0.060186675	63.84246575	0.57246095
100	48	6.83	2	76683.5	0.063646532	60.40540541	0.57009093
100	49	6.84	2.1	81902.39736	0.063762555	60.69178082	0.575880776
100	49	6.88	2.2	88141.48101	0.06752595	60.88194444	0.567342223
100	49	6.89	1.9	88281.82724	0.071267906	58.25517241	0.557184636
100	50	6.95	1.8	87417.04163	0.076094935	64.36220472	0.558846578

Larisa

98.28	49	7.09	2.8	45511	0.041930606	94.47490347	0.424663999
97.96	50	7.18	2.8	52404.71429	0.042454202	96.67871486	0.625779534
97.62	50	7.15	2.6	46085.35422	0.041256061	103.9512195	0.559396423
97.4	50	7.12	2.6	56895.43165	0.046131586	96.30327869	0.7278939
96.86	50	7.02	2.2	51877.21519	0.050039025	95.69294606	0.879113823
97.92	50	6.9	2	58652.5	0.053766401	93.95689655	0.956306038
95.93	50	7.08	2.1	66016.78152	0.056320045	90.37179487	0.982604549
95.74	50	7.39	2.2	73816.08228	0.061824107	86.17446809	0.918066301
95.58	50	7.42	1.9	67582.55814	0.058173027	82.38135593	0.818460954
95.39	50	7.38	1.8	74239.25173	0.071443919	84.61818182	0.797439529

Magnisia

100	73	8.78	2.8	47135	0.041233417	118.6808511	0.430139146
100	74	8.52	2.8	55886.2381	0.043000304	115.1398601	0.461534764
100	74	8.62	2.6	48131.60763	0.040999543	125.8129496	0.449279767
100	74	8.7	2.6	60561.47482	0.047068333	113.2605634	0.57141924
100	74	7.13	2.2	52319.74684	0.048049133	116.1398601	0.596655378
100	75	7.02	2	58889	0.051320101	112.3125	0.591077435
100	75	8.81	2.1	64254.54545	0.05219287	111.4	0.598976132
100	76	8.2	2.2	71739.91139	0.057323569	108.057554	0.591464862
100	76	8.74	1.9	64287.54153	0.055593639	102.7323944	0.582285555
100	76	8.83	1.8	66249.36571	0.062992126	102.1521739	0.584830725

Trikala

100	41	8.1	2.8	53757	0.045669536	66.13846154	0.341448063
100	41	8.24	2.8	63689.80952	0.047652804	65.10769231	0.367913836
100	41	8.3	2.6	53646.00817	0.044284549	72.47849462	0.358688319
100	41	8.42	2.6	66679.7482	0.050375394	66.24064171	0.457384906
100	41	8.62	2.2	63945.82278	0.056754875	61.10638298	0.481574784
100	41	8.44	2	70328.5	0.058896908	60.99456522	0.480055031
100	41	8.17	2.1	78889.00293	0.061842105	59.7752809	0.487636506
99.6	41	8.52	2.2	86353.1962	0.066477106	58.28	0.482432679
99.31	41	8.81	1.9	82103.03987	0.064348	57.01142857	0.475797118

100	41	8.86	1.8	87462.23489	0.074775251	58.00613497	0.47851163
Grevena							
100	15	11.32	2.8	67389	0.056477233	38.80821918	0.319117605
100	15	11	2.8	70794	0.05222685	44.58571429	0.346807786
100	15	11.2	2.6	67910.76294	0.055632343	45.93650794	0.338884416
100	15	11.25	2.6	86357.73381	0.065062053	44.31666667	0.434337342
100	15	11.18	2.2	79520.41139	0.069906223	40.44827586	0.461197919
100	15	11.05	2	88007	0.073909172	39.40350877	0.449062385
100	16	11.47	2.1	95979.80938	0.073584906	40	0.43344562
100	17	11.58	2.2	100888.1962	0.076271186	40.12	0.409321857
100	18	11.45	1.9	86949.93355	0.07386066	35.35185185	0.385604663
100	19	11.58	1.8	85124.33102	0.079132791	40.10869565	0.378350648
Drama							
100	27	9.7	2.8	51875	0.045032166	89.29787234	0.378971913
100	27	9.72	2.8	60122.33333	0.045892835	90.03296703	0.409617715
100	27	9.52	2.6	51293.0109	0.043367347	101.4588235	0.399753957
100	27	9.68	2.6	63991.72662	0.049469965	96.63414634	0.509718489
100	27	9.67	2.2	57115.44304	0.052173913	98.78205128	0.533587217
100	27	9.63	2	62747	0.055088581	100.4285714	0.529928172
100	28	9.75	2.1	68257.5	0.054948022	96.19480519	0.531120817
100	28	9.8	2.2	73103.22152	0.058305369	92.88311688	0.521646614
100	28	9.72	1.9	69554.51827	0.059408755	90.20512821	0.510336909
100	29	9.84	1.8	66380.99108	0.063279988	90.81333333	0.509992683
Imathias							
100	80	10	2.8	49795	0.04296398	122.4672897	0.493629798
100	81	9.84	2.8	58935.28571	0.044882321	118.4166667	0.49379419
100	81	9.72	2.6	50802.22071	0.042886874	128.1333333	0.516345704
100	81	9.8	2.6	86481.43885	0.047726905	127.443299	0.656450031
100	82	9.82	2.2	57616.89873	0.052799607	135.7333333	0.68245827
100	82	9.81	2	61889.5	0.054047153	143.2804878	0.678742932
100	83	10.01	2.1	69944.93402	0.056465174	136.1325301	0.684148068
100	84	10.2	2.2	75545.92405	0.060271174	129.7349398	0.671871973
100	85	10.25	1.9	68432.82392	0.057388809	125.9638554	0.657736758
100	86	10.01	1.8	69098.51833	0.064876957	115.5168539	0.657319397
Thessaloniki							
94.29	254	7.7	2.8	41400	0.038290155	196.437659	0.569217264
92.4	255	6.64	2.8	47310.90476	0.038531557	198.3194805	0.471565495
91.96	257	7.12	2.6	42557.41144	0.03826418	205.484456	0.492125692
92.73	259	7.6	2.6	51116.15108	0.04308418	194.472	0.659731421
91.89	263	7.01	2.2	47862.56329	0.046607025	190.472	0.835949708
91.4	266	6.95	2	51928	0.048418788	186.4304813	0.845281353
91.05	267	7.63	2.1	56890.5132	0.049113932	178.5403226	0.77605533
91.03	268	7.72	2.2	60543.74051	0.051133344	175.260274	0.751001447
91.02	269	7.86	1.9	50952.19269	0.04017175	178.3215259	0.667416595
91.76	270	8.54	1.8	59976.54113	0.057720541	170.2826087	0.719654205
Kavalas							
100	64	8.17	2.8	47200	0.041078734	106.9375	0.556089935

100	64	8.1	2.8	54553.52381	0.041833333	109.0909091	0.599841548
100	64	8.02	2.6	48605.31335	0.041382114	107.8947368	0.586617977
100	64	8.1	2.6	58003.99281	0.044926004	113.52	0.74784029
100	64	8.12	2.2	56836.4557	0.052504638	115.9139785	0.780550383
100	64	8.04	2	60041	0.052605895	112.5934066	0.776637671
100	65	8.2	2.1	66168.89296	0.054305978	109.6666667	0.780646466
100	66	8.25	2.2	71905.86076	0.057473684	106.741573	0.768333863
100	66	8.3	1.9	60863.75415	0.052382489	110.6785714	0.754070424
100	66	8.41	1.8	64170.75818	0.061492603	107.8333333	0.755676125

Kastorias

100	31	12.1	2.8	46910	0.044546544	71.51428571	0.360484178
100	31	12.01	2.8	56002.04762	0.046868604	71.85294118	0.389752086
100	31	12.05	2.6	48533.09264	0.04472098	77.92424242	0.379146084
100	31	12.15	2.6	62957.66187	0.052425495	69.65151515	0.482272962
100	31	12.05	2.2	56992.78481	0.056932214	75.12307692	0.505191785
100	31	12	2	64879	0.062139654	73.171875	0.504041592
100	31	12.11	2.1	71355.30792	0.062943262	71.61904762	0.515421573
100	31	12.59	2.2	79310.44937	0.068826868	70.46666667	0.513921781
100	31	12.84	1.9	80525.28239	0.064764268	69.48275862	0.510882965
100	31	12.91	1.8	79598.88999	0.071374906	71.30357143	0.516025057

Kilkis

100	32	6.85	2.8	67175	0.056298381	44.0620155	0.408157347
100	32	6.86	2.8	78926	0.057803468	46.13333333	0.411508399
100	32	6.74	2.6	65297.6158	0.053191489	52.5045045	0.432449968
100	32	6.84	2.6	77386.72662	0.057527083	49.11926606	0.552362321
100	31	6.82	2.2	71779.71519	0.062986003	47.62962963	0.581408191
100	32	6.81	2	75748.5	0.063159992	47.3490566	0.575125209
100	32	6.87	2.1	81976.78152	0.06255161	47.49019608	0.576902958
100	33	6.87	2.2	85738.46203	0.064954362	49.07291667	0.564587548
100	33	6.9	1.9	84737.47508	0.060841424	48.28125	0.55101551
100	33	6.94	1.8	85042.13578	0.067599569	62.77027027	0.55043829

Kozanis

100	43	12.74	2.8	48493	0.041065938	88.1626506	0.597532331
100	43	12.62	2.8	66232.19048	0.049401807	77.76582278	0.644289249
100	43	12.54	2.6	51279.80926	0.042758346	98.2875817	0.626020765
100	43	12.52	2.6	63677.33813	0.048490989	98.69285714	0.797327794
100	43	12.5	2.2	59113.44937	0.053811981	101.1304348	0.837424816
100	43	12.44	2	61315	0.053025303	101	0.832919184
99.81	44	12.89	2.1	67438.02053	0.053715241	102.0310078	0.843226239
99.74	44	13.01	2.2	72279.24684	0.056953538	101.416	0.831813505
99.86	44	12.99	1.9	77397.54153	0.060297446	99.77419355	0.81832218
100	44	13.11	1.8	68943.73142	0.061547529	112.0471698	0.820526835

Pellias

100	54	8.08	2.8	53857	0.048045063	92.15267176	0.490307885
100	54	8	2.8	61911.95238	0.048560998	92.7480315	0.490775552
100	55	7.98	2.6	54970.83106	0.047910953	96.859375	0.513621369
100	55	7.88	2.6	67469.82014	0.053458567	89	0.65297323
100	55	7.76	2.2	61395.85443	0.057852722	86.42635659	0.682416829

100	55	7.74	2	66089	0.059470356	83.94615385	0.674283611
100	56	8.09	2.1	74447.68328	0.061874173	83.35433071	0.679101586
100	57	8.44	2.2	75360.13291	0.06161955	82.81746032	0.666770301
100	57	8.52	1.9	73884.1196	0.058513189	81.4453125	0.65252608
100	58	8.21	1.8	74136.71952	0.06691993	82.128	0.652106964

Pierias

100	72	7.32	2.8	52798	0.042930022	122.2235294	0.404213666
100	73	7.1	2.8	59903.38095	0.042808717	121.4705882	0.403869508
100	73	7.02	2.6	52232.65668	0.041471195	125.3882353	0.421532099
100	73	7.1	2.6	63302.80576	0.046160131	122.4	0.53427284
100	74	7	2.2	59682.24684	0.051382979	120.5128205	0.555020374
100	75	6.98	2	65484	0.053950954	117.6282051	0.542823659
100	77	7.33	2.1	74185.66716	0.056684252	114.2179487	0.541020266
100	79	7.42	2.2	80262.49367	0.060978464	108.1518987	0.52613674
100	81	7.94	1.9	73982.59136	0.055864627	110.6153846	0.509962136
99.43	82	7.5	1.8	77436.67493	0.046192409	111.7066667	0.506170522

Serres

99.45	49	6.49	2.8	56365	0.045792957	94.54748603	0.367849748
99.41	49	6.32	2.8	64987.2381	0.046318721	93.84090909	0.399022493
99.37	49	6.34	2.6	55705.46322	0.044636181	101.0755814	0.389714955
99.28	49	6.52	2.6	66227.30216	0.048081137	101.7388535	0.497455961
99.07	48	6.42	2.2	66553.51266	0.056798012	89.7133758	0.522929005
99.1	49	6.43	2	75586.5	0.061793124	85.58333333	0.518227965
99.15	49	6.49	2.1	86244.67742	0.06501795	81.3961039	0.521742679
100	50	6.51	2.2	94320.56962	0.070636063	77.67763158	0.512244006
100	51	6.53	1.9	89941.01329	0.067005864	75.79084967	0.501373226
100	51	6.82	1.8	93424.63826	0.075838212	76.69387755	0.501928769

Florina

99.67	29	11.93	2.8	66183	0.057617388	53.01086957	0.392559479
100	29	11.63	2.8	72111.33333	0.054667788	57.30120482	0.423954583
100	29	11.5	2.6	64920.20436	0.054734319	58.20930233	0.413195171
100	29	11.4	2.6	80470.46763	0.062795699	58.125	0.526685707
100	29	11.32	2.2	71891.55063	0.065662244	54.90123457	0.554025462
100	29	11.02	2	79737.5	0.069772833	53.925	0.551157771
100	30	11.95	2.1	87991.03372	0.070719302	52.26582278	0.558666736
100	30	11.98	2.2	98072.46835	0.078269567	51.26923077	0.552596531
100	30	12	1.9	87150.98007	0.071754564	50.56410256	0.544925418
100	30	12.08	1.8	88609.29633	0.084400314	57.11940299	0.547726147

Chalkidiki

100	29	5.31	2.8	52690	0.046569647	84.88235294	0.49887013
100	29	5.39	2.8	60370.2381	0.047231045	86.20238095	0.497925444
100	29	5.34	2.6	55668.18801	0.048306571	86.1744186	0.520041841
100	29	5.38	2.6	67032.41007	0.052930057	79.96511628	0.659320518
100	30	5.42	2.2	60606.39241	0.056912992	78.96470588	0.68533922
100	31	5.32	2	71707.5	0.06473145	75.78823529	0.659101784
100	33	6.31	2.1	82163.15982	0.068603713	72.88235294	0.637030134
100	34	6.32	2.2	87024.56962	0.071597433	68.86046512	0.60214565
100	36	6.8	1.9	88855.299	0.065420561	68.78571429	0.568366053

100	37	6.73	1.8	90683.94945	0.072879544	69.28395062	0.554475976
Evros							
100	33	7.85	2.8	55992	0.048771868	75.45333333	0.379027873
100	33	7.94	2.8	64352.09524	0.049347283	75.00694444	0.412451581
100	33	7.92	2.6	56589.97275	0.048124619	80.92253521	0.402571862
93.57	33	7.93	2.6	68366.51079	0.052950649	79.37593985	0.51332436
93.15	33	7.44	2.2	64146.0443	0.058517034	76.18320611	0.537757882
100	32	7.4	2	74751.5	0.064352332	74.80620155	0.538626546
92.71	31	7.65	2.1	82918.70235	0.06816685	77.86324786	0.554887165
92.75	32	7.64	2.2	90206.46835	0.07231164	75.21052632	0.556894084
100	31	7.52	1.9	83074.50166	0.068238956	73.92035398	0.318275948
100	31	7.51	1.8	86422.22498	0.079571173	83.11881188	0.565096493
Xanthi							
50.09	50	8.37	2.8	56347	0.046241597	75.52307692	0.352325089
51.81	50	8.44	2.8	66798.57143	0.048665955	73.203125	0.379985544
52.09	50	8.35	2.6	60513.96458	0.049367851	76.66153846	0.368611364
50.9	50	8.44	2.6	72336.69065	0.053735256	70.43076923	0.467147169
50.17	51	8.71	2.2	63536.96203	0.055185742	70.56060606	0.486435679
52.25	51	8.7	2	72760	0.059345896	71.03076923	0.485010707
52.43	51	8.43	2.1	73916.96481	0.05818823	69.8	0.4916254
52.36	51	8.74	2.2	79378.99367	0.060986547	69.6875	0.48777021
55.63	51	8.73	1.9	66767.32558	0.054352534	71.04615385	0.482191337
53.18	51	8.76	1.8	68496.31814	0.060393873	73.70967742	0.484586516
Rodopi							
41.81	40	5.59	2.8	63596	0.051118211	67.41538462	0.333106099
43.88	40	6.34	2.8	73389.7619	0.051864245	66.41269841	0.362248432
44.95	40	6.44	2.6	64146.74387	0.050573163	74.15	0.352678927
42.44	40	6.42	2.6	78428.99281	0.05695429	68.18333333	0.448470363
43.06	40	6.53	2.2	75353.03797	0.064262129	69.07017544	0.468523134
40.86	41	6.42	2	87313	0.06970091	66.29310345	0.468005586
44.95	41	5.64	2.1	94377.20674	0.07331698	67.94444444	0.47474655
45.59	41	5.68	2.2	97113.20886	0.073211314	75.125	0.471379284
42.95	41	5.62	1.9	83332.99003	0.070244451	72.63265306	0.466360091
43.91	41	5.78	1.8	82414.43013	0.075049561	73.5625	0.46982917
Dodekanisa							
100	54	5.23	2.8	42595	0.039767533	116.9007634	0.565978766
100	55	5	2.8	48228.33333	0.039250479	116.4380165	0.789177271
100	55	5.02	2.6	44189.75477	0.040090172	124.3409091	0.740656873
100	56	5.03	2.6	56343.20144	0.046274038	114.3206107	0.738262116
100	57	5	2.2	47920.88608	0.047100515	120.3100775	0.758932823
100	58	4.88	2	56035.5	0.052606794	113.4732824	0.741769189
100	59	5.28	2.1	61714.61877	0.053559413	114.3230769	0.747530754
100	60	5.3	2.2	65325.24684	0.055714186	111.3100775	0.73471506
100	60	5.44	1.9	65549.36877	0.053453369	108.5343511	0.719383843
100	61	5.82	1.8	62346.08028	0.058891206	115.8916667	0.717901293
Kiklades							
97.43	35	6	2.8	56424	0.049758584	50.37837838	0.481968046

97.42	35	5.88	2.8	69304.7619	0.053416329	50.05797101	0.519446885
97.41	35	5.89	2.6	56285.55858	0.048185232	59.62686567	0.505576516
97.38	35	5.87	2.6	69894.02878	0.054415209	57.61111111	0.642789054
97.35	36	5.86	2.2	59358.76582	0.054925291	57.824	0.670162162
97.36	36	5.52	2	68281.5	0.062473853	59.26446281	0.660106005
97.39	37	6.1	2.1	80895.28592	0.066713092	60.33613445	0.663592464
97.45	37	6	2.2	87335.90506	0.071186441	60.51282051	0.650081763
97.56	38	5.92	1.9	75592.85714	0.061929224	62.01769912	0.634930953
97.25	38	6.08	1.8	73149.24678	0.067674586	64.30555556	0.634079726

Lesbos

100	48	8.24	2.8	61776	0.052723261	72.97457627	0.353521359
100	48	8.5	2.8	70865.47619	0.052031903	69.28947368	0.384279314
100	48	8.35	2.6	57141.33515	0.0468039	78.88888889	0.3768578
100	48	8.34	2.6	71325.86331	0.053512103	73.28695652	0.453416059
100	47	8.24	2.2	64202.56329	0.056603774	66.94736842	0.477244656
100	47	8.12	2	74081	0.06192907	67.06306306	0.477512047
100	47	8.28	2.1	82174.44282	0.063771303	66.75229358	0.48961173
100	47	8.4	2.2	88418.5443	0.068041526	67.24528302	0.489505852
100	46	8.51	1.9	80973.77076	0.067677946	64.07476636	0.487659677
100	46	8.64	1.8	78370.76313	0.074074074	64.74757282	0.493784463

Samos

100	52	6.7	2.8	60120	0.052126639	37.6746988	0.394801276
100	52	6.92	2.8	75629.04762	0.057293497	35.12345679	0.651956166
100	52	6.98	2.6	59412.01635	0.050179211	41.85	0.418991237
100	52	6.96	2.6	76205.71942	0.058881256	38.2125	0.503060841
100	52	6.98	2.2	62861.74051	0.057655955	39.18518519	0.524880263
100	52	6.97	2	70786	0.061457993	38.72151899	0.523128492
100	51	6.23	2.1	79179.43548	0.063694268	38.24358974	0.538699601
100	51	6.52	2.2	82100.56329	0.065020862	38.34666667	0.540345661
100	50	6.51	1.9	71261.04651	0.061209964	37.97297297	0.53932369
100	50	6.69	1.8	78840.77304	0.075636364	39.28571429	0.54771559

Chios

100	56	10.76	2.8	55814	0.048871306	82.63461538	0.320519358
100	56	10.84	2.8	62616.7619	0.048127074	82.70588235	0.523821667
100	56	10.75	2.6	49098.43324	0.041523192	102.8541667	0.338989068
100	56	10.72	2.6	65615.61151	0.05083612	99.66666667	0.407590581
100	56	10.7	2.2	61103.63924	0.056550424	98.69767442	0.428554087
100	56	10.72	2	67899	0.060018904	98.41860465	0.427919527
100	56	10.7	2.1	76558.8563	0.062484863	96.02325581	0.437012418
100	56	10.84	2.2	79370.33544	0.06361132	92.86046512	0.43484749
100	55	10.83	1.9	78592.77409	0.060280971	93.21428571	0.431548641
100	55	10.96	1.8	77479.32607	0.064524766	91.09756098	0.435952359

Iraklio

97.29	95	6.89	2.8	47010	0.044178269	85.42857143	0.448949618
96.54	96	7	2.8	56555.7619	0.047040127	84.18060201	0.481578237
96.32	97	6.92	2.6	49179.97275	0.04541944	90.63666667	0.466621721
96.75	97	6.98	2.6	62605	0.05185511	86.24827586	0.590271624
96.29	99	6.42	2.2	54855.88608	0.054682019	84.42857143	0.680420419

96.34	100	6.33	2	60138.5	0.056948952	87.53874539	0.602145675
96.18	100	6.85	2.1	65093.2478	0.056751728	85.17735849	0.609684628
96.22	101	6.67	2.2	68466.37975	0.058415614	85.39215686	0.601523723
96.57	102	6.71	1.9	68292.37542	0.057984439	84.6745098	0.591884257
96.4	102	6.68	1.8	69112.64123	0.065859379	84.58704453	0.593225623
Lasithiou							
100	38	3.85	2.8	55007	0.049443969	66.42045455	0.518615483
100	38	3.94	2.8	61213.47619	0.048601399	68.0952381	0.560964695
100	38	3.45	2.6	53232.87466	0.046609484	78.21518987	0.546278879
100	38	3.5	2.6	66430.28777	0.052613056	72.85897436	0.695034186
100	38	3.62	2.2	57753.38608	0.054757016	76.89473684	0.723444456
100	39	3.44	2	66875.5	0.060691602	76.59459459	0.71341
100	39	4.07	2.1	76455.21994	0.064246824	75.47945205	0.720807981
100	39	4	2.2	81278.39241	0.066741869	73.875	0.709943039
100	40	4.61	1.9	74292.84053	0.059059633	72.66666667	0.696928748
100	40	4.72	1.8	76284.81169	0.067422434	71.82857143	0.698963236
Rethimno							
100	45	4.5	2.8	60572	0.053897979	44.84892086	0.43343018
100	44	3.94	2.8	69844	0.055036855	46.60305344	0.47128612
100	45	3.98	2.6	58600.50409	0.050842313	51.07751938	0.457161767
100	45	3.97	2.6	71148.16547	0.055940594	48.87096774	0.578789555
100	46	3.96	2.2	60996.61392	0.056678763	47.82644628	0.598488308
100	46	3.72	2	67074.5	0.059665871	48.88333333	0.586821594
100	47	4.89	2.1	74667.91056	0.061398825	47.61864407	0.590441468
100	48	4.52	2.2	78963.39873	0.063432165	48.39130435	0.579151657
100	48	4.56	1.9	79440.83056	0.064259259	47.78761062	0.566688352
100	48	4.82	1.8	76841.53617	0.069655571	51.45544554	0.566224389
Chania							
97.17	54	7.03	2.8	50118	0.045762108	57.30612245	0.41095091
97.3	54	6.82	2.8	58011.52381	0.047057749	59.15675676	0.442506243
97.22	55	6.84	2.6	49230.44959	0.0437821	76.62580645	0.43011484
97.33	55	6.7	2.6	62380.14388	0.050260917	74.81506849	0.545923443
97.25	55	6.72	2.2	54211.93038	0.052177858	76	0.567922537
96.98	56	6.34	2	57133	0.054175451	77.92142857	0.560534627
96.6	56	7.1	2.1	64384.5088	0.05454373	77.51470588	0.566484637
95.87	57	7	2.2	70189.36709	0.058249556	83.85123967	0.558313612
94.2	57	7.08	1.9	63528.48837	0.055160717	109.5752212	0.548741538
95.3	57	7.33	1.8	70743.55302	0.06721144	88.1981982	0.55023174
Greater Athens							
89.22	6731	8.55	2.8	39808	0.036895067	303.2632242	0.271305809
88.22	7568	8.62	2.8	46680.28571	0.037912064	286.7701863	0.325069629
88.36	6762	8.58	2.6	41324.22343	0.037250372	291.5995289	0.291961907
87.73	6784	8.44	2.6	50475.07194	0.041623423	266.8967136	0.302917327
87.41	6820	8.27	2.2	47412.21519	0.046182556	255.8238702	0.284708773
86.37	6787	7.96	2	53043.5	0.049187832	245.8259861	0.286254034
86.1	6693	8.44	2.1	60262.45601	0.050614713	231.862069	0.320624868
86.01	6597	8.32	2.2	63445.68987	0.053526301	220.4908467	0.329734429
85.39	6488	8.69	1.9	58911.67774	0.053322015	211.201559	0.325920731

85.39	6416	8.43	1.8	68636.6997	0.055702075	233.5271523	0.44195904
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Appendix Nine

Results from the empirical analysis

Results from the pooled model

Ordinary Least Squares Estimation

Dependent variable is CEPR

520 observations used for estimation from 1 to 520

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
PPPS	27.9050	305.7718	.091261[.927]
PD	-.81245	5.4048	-.15032[.881]
U	3600.7	848.2136	4.2451[.000]
PEBP	7115.3	1175.5	6.0529[.000]
TPR	1208957	54144.8	22.3282[.000]
ASSR	-26.3616	31.7318	-.83076[.406]
GDPFR	16142.0	3633.7	4.4423[.000]

R-Squared	.75413	F-statistic F(6, 513)	262.2443[.000]
R-Bar-Squared	.75125	S.E. of Regression	4756.4
Residual Sum of Squares	1.16E+10	Mean of Dependent Variable	.2254E-4
S.D. of Dependent Variable	9536.8	Maximum of Log-likelihood	-5137.3
DW-statistic	2.0111		

Diagnostic Tests

Test Statistics	LM Version	F Version
* A:Serial Correlation*CHI-SQ(1)= .036672[.848]*F(1, 512)= .036110[.849]*		
* B:Functional Form *CHI-SQ(1)= 8.4106[.004]*F(1, 512)= 8.4174[.004]*		
* C:Normality *CHI-SQ(2)= 1880.6[.000]*		Not applicable
* D:Heteroscedasticity*CHI-SQ(1)= .28583[.593]*F(1, 518)= .28489[.594]*		

A:Lagrange multiplier test of residual serial correlation

B:Ramsey's RESET test using the square of the fitted values

C:Based on a test of skewness and kurtosis of residuals

D:Based on the regression of squared residuals on squared fitted values

Ordinary Least Squares Estimation

```

*****
Dependent variable is CEPR
520 observations used for estimation from 1 to 520
*****
Regressor          Coefficient          Standard Error          T-Ratio[Prob]
PPPS               295.4574             428.6231                .68932[.491]
PD                 8.7587               7.5582                  1.1588[.247]
U                  6732.1               1173.5                  5.7366[.000]
PEBP              -12740.1             1078.6                  -11.8122[.000]
ASSR              -237.0968            42.5004                 -5.5787[.000]
GDPGR             28505.2              5038.0                  5.6581[.000]
*****
R-Squared          .51519               F-statistic F( 5, 514) 109.2398[.000]
R-Bar-Squared     .51047               S.E. of Regression     6672.6
Residual Sum of Squares 2.29E+10           Mean of Dependent Variable .2254E-4
S.D. of Dependent Variable 9536.8             Maximum of Log-likelihood -5313.8
DW-statistic      1.9111
*****

```

Diagnostic Tests

```

*****
* Test Statistics * LM Version * F Version *
*****
* A:Serial Correlation*CHI-SQ( 1)= 1.1589[.282]*F( 1, 513)= 1.1458[.285]*
* B:Functional Form *CHI-SQ( 1)= .42037[.517]*F( 1, 513)= .41504[.520]*
* C:Normality *CHI-SQ( 2)= 88.9136[.000]* Not applicable *
* D:Heteroscedasticity*CHI-SQ( 1)= 6.7209[.010]*F( 1, 518)= 6.7828[.009]*
*****
A:Lagrange multiplier test of residual serial correlation
B:Ramsey's RESET test using the square of the fitted values
C:Based on a test of skewness and kurtosis of residuals
D:Based on the regression of squared residuals on squared fitted values

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Results from the time-series model

Ordinary Least Squares Estimation

Dependent variable is CEPR

520 observations used for estimation from 1 to 520

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
PPPS	-55.4566	24.3078	-2.2814[.023]
PD	-.48768	.41741	-1.1683[.243]
U	-67.2293	128.9837	-.52122[.602]
PEBP	5883.0	1058.5	5.5576[.000]
TPR	1297376	44274.4	29.3031[.000]
ASSR	8.8879	12.6461	.70282[.482]
GDPFR	-873.9686	1163.6	-.75110[.453]

R-Squared	.81881	F-statistic F(6, 513)	386.3843[.000]
R-Bar-Squared	.81669	S.E. of Regression	5534.7
Residual Sum of Squares	1.57E+10	Mean of Dependent Variable	.0019757
S.D. of Dependent Variable	12927.1	Maximum of Log-likelihood	-5216.1
DW-statistic	1.6695		

Diagnostic Tests

Test Statistics	LM Version	F Version
* A:Serial Correlation*CHI-SQ(1)= 15.3525[.000]*F(1, 512)= 15.5762[.000]*		
* B:Functional Form *CHI-SQ(1)= 2.8681[.090]*F(1, 512)= 2.8397[.093]*		
* C:Normality *CHI-SQ(2)= 2279.6[.000]*		Not applicable
* D:Heteroscedasticity*CHI-SQ(1)= .38636[.534]*F(1, 518)= .38516[.535]*		

A:Lagrange multiplier test of residual serial correlation

B:Ramsey's RESET test using the square of the fitted values

C:Based on a test of skewness and kurtosis of residuals

D:Based on the regression of squared residuals on squared fitted values

Ordinary Least Squares Estimation

 Dependent variable is CEPR
 520 observations used for estimation from 1 to 520

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
PPPS	-124.0437	39.5244	-3.1384[.002]
PD	3.2912	.64852	5.0750[.000]
U	1100.2	200.4031	5.4901[.000]
PEBP	-17237.2	1152.8	-14.9524[.000]
ASSR	-216.5422	16.3963	-13.2068[.000]
GDPFR	325.8650	1899.6	.17154[.864]

R-Squared	.51553	F-statistic F(5, 514)	109.3924[.000]
R-Bar-Squared	.51082	S.E. of Regression	9041.4
Residual Sum of Squares	4.20E+10	Mean of Dependent Variable	.0019757
S.D. of Dependent Variable	12927.1	Maximum of Log-likelihood	-5471.8
DW-statistic	1.3421		

Diagnostic Tests

Test Statistics	LM Version	F Version
* A:Serial Correlation	*CHI-SQ(1)= 58.2614[.000]	*F(1, 513)= 64.7295[.000]
* B:Functional Form	*CHI-SQ(1)= 17.9148[.000]	*F(1, 513)= 18.3043[.000]
* C:Normality	*CHI-SQ(2)= 59.6030[.000]	* Not applicable
* D:Heteroscedasticity	*CHI-SQ(1)= .80796[.369]	*F(1, 518)= .80610[.370]

A:Lagrange multiplier test of residual serial correlation
 B:Ramsey's RESET test using the square of the fitted values
 C:Based on a test of skewness and kurtosis of residuals
 D:Based on the regression of squared residuals on squared fitted values

Results from the cross-section model

Ordinary Least Squares Estimation

```

*****
Dependent variable is CEPR
520 observations used for estimation from 1 to 520
*****
Regressor      Coefficient      Standard Error      T-Ratio[Prob]
PPPS           -50.0523         11.0431             -4.5325[.000]
PD             -.88467          .20134              -4.3940[.000]
U              -158.1914        61.0484             -2.5912[.010]
TPR            1331819          28535.4             46.6726[.000]
ASSR           24.1866          6.8249              3.5439[.000]
GDPGR         -2411.3           553.7853            -4.3543[.000]
*****
R-Squared      .91907           F-statistic F( 5, 514) 1167.5[.000]
R-Bar-Squared .91829           S.E. of Regression    2494.6
Residual Sum of Squares 3.20E+09 Mean of Dependent Variable .0019531
S.D. of Dependent Variable 8727.0 Maximum of Log-likelihood -4802.2
DW-statistic   .19112
*****

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Diagnostic Tests

```

*****
* Test Statistics *      LM Version      *      F Version      *
*****
* A:Serial Correlation*CHI-SQ( 1)= 424.6455[.000]*F( 1, 513)= 2284.6[.000]*
* B:Functional Form *CHI-SQ( 1)= .87852[.349]*F( 1, 513)= .86816[.352]*
* C:Normality *CHI-SQ( 2)= 34.6147[.000]* Not applicable *
* D:Heteroscedasticity*CHI-SQ( 1)= 1.6307[.202]*F( 1, 518)= 1.6295[.202]*
*****
A:Lagrange multiplier test of residual serial correlation
B:Ramsey's RESET test using the square of the fitted values
C:Based on a test of skewness and kurtosis of residuals
D:Based on the regression of squared residuals on squared fitted values

```

Ordinary Least Squares Estimation

```

*****
Dependent variable is CEPR
520 observations used for estimation from 1 to 520
*****
Regressor      Coefficient      Standard Error      T-Ratio[Prob]
PPPS           -120.4775        25.0126             -4.8167[.000]
PD             2.8270          .42291              6.6845[.000]
U              1002.0          127.4880            7.8596[.000]
ASSR          -202.8794        10.9440             -18.5379[.000]
GDPPR         -2146.6          1266.1              -1.6954[.091]
*****
R-Squared      .57611           F-statistic F( 4, 515) 174.9876[.000]
R-Bar-Squared .57282           S.E. of Regression      5703.9
Residual Sum of Squares 1.68E+10 Mean of Dependent Variable .0019531
S.D. of Dependent Variable 8727.0 Maximum of Log-likelihood -5232.8
DW-statistic   .18765
*****

```

Diagnostic Tests

```

*****
* Test Statistics * LM Version * F Version *
*****
* A:Serial Correlation*CHI-SQ( 1)= 425.1912[.000]*F( 1, 514)= 2305.1[.000]*
* B:Functional Form *CHI-SQ( 1)= 71.3797[.000]*F( 1, 514)= 81.7822[.000]*
* C:Normality *CHI-SQ( 2)= 1.5831[.453]* Not applicable *
* D:Heteroscedasticity*CHI-SQ( 1)= 5.1980[.023]*F( 1, 518)= 5.2303[.023]*
*****
A:Lagrange multiplier test of residual serial correlation
B:Ramsey's RESET test using the square of the fitted values
C:Based on a test of skewness and kurtosis of residuals
D:Based on the regression of squared residuals on squared fitted values

```